

Reminder Newsletters

From: Friends of the River
Subject: February e-Newsletter
Date: February 11, 2009 3:28:47 PM EST
To: localgroups@waterwordsthatwork.com
Reply-To: Friends of the River

Friends of the River

the voice of California Rivers

Raise your Voice |  Tell A Friend

February E-Newsletter

If you build it, it will rain? [Click here for an Auburn Dam Update \(Sierra Nevada Foothills\)](#)
Protect the Piru. [Click here for a Piru Creek Update \(Los Angeles County\)](#)

Wild & Scenic Legislation Update: Hundreds of Friends of the River supporters called and emailed their representatives over the last week. Thank you! We were sure the final vote would take place today, but it has been brushed aside. We will stay focused and will keep you updated. [If you did not have a chance to email or call, there still is time, click here for more information.](#)

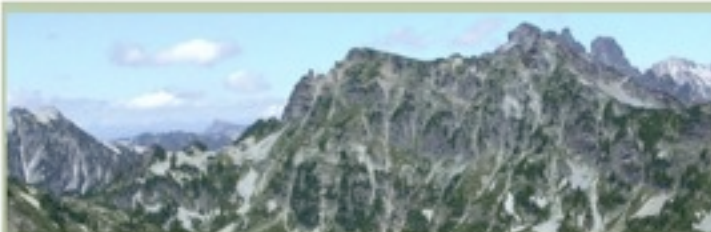

Spring is around the corner -





From: <Unspecified> Conservancy
Subject: E-News: 3 places to visit before spring
Date: February 12, 2009 1:09:27 PM EST
To: localgroups@waterwordsthatwork.com
Reply-To: jessier@cascadeland.org

February 2009

Cascade Land Conservancy E-News

[Cities: Our Two Programs to Improve Our Communities](#)

Learn about the exciting work we're doing with citizens and cities in Western and Central Washington. [Click here.](#)

[Winter Recreation Opportunities on Our Conserved Lands](#)

Only five weeks of winter left! [Here are three recommendations to get the most out of this winter in the Northwest.](#)

[Winter Photo Contest on Facebook](#)

Share your winter photos with us and we may want to use them in our future publications. [Learn more...](#)

[Green Tip: Now is the Time to Plant](#)

Did you know that in our mild Pacific Northwest climate, the best time to plant native trees and shrubs is November to mid-March? [Click here to read more advice from our Stewardship staff including online resources about native plants.](#)

Did you notice our NEW LOGO?
We're celebrating our 20th Anniversary.

Donate Now

FORWARD THIS E-MAIL

Send this e-mail to a friend!

UPCOMING EVENTS

2/14 Environmental Restoration at Hazel Wolf Wetlands

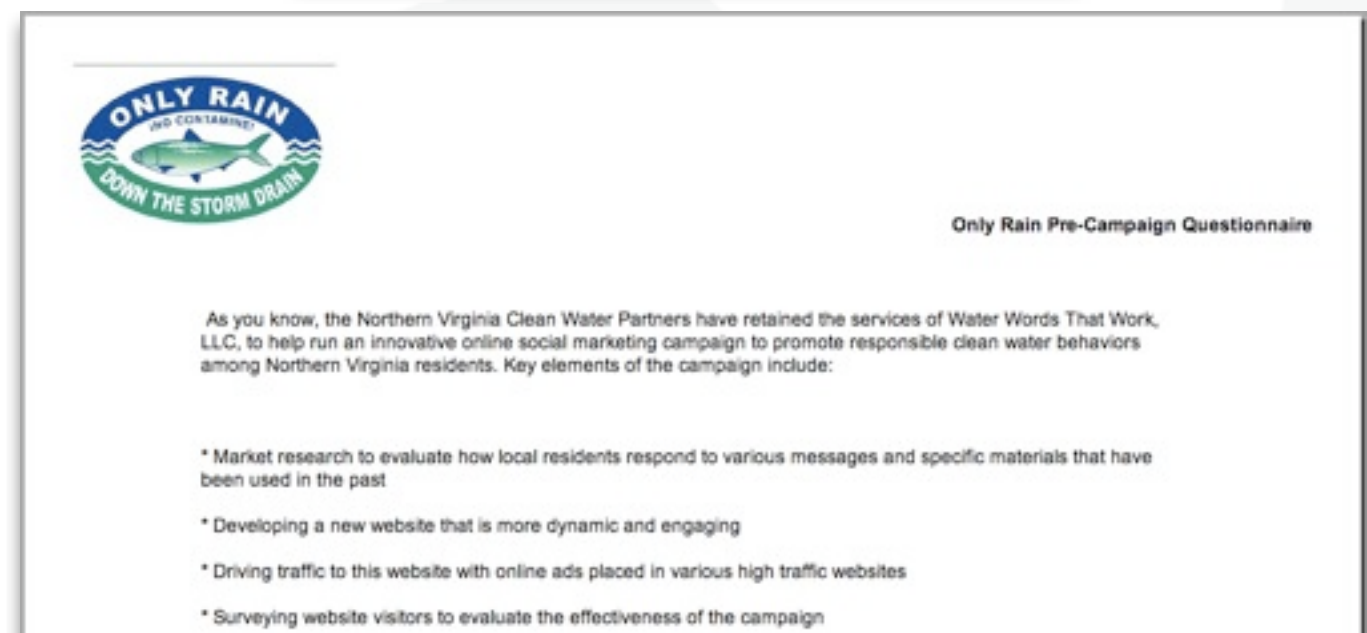
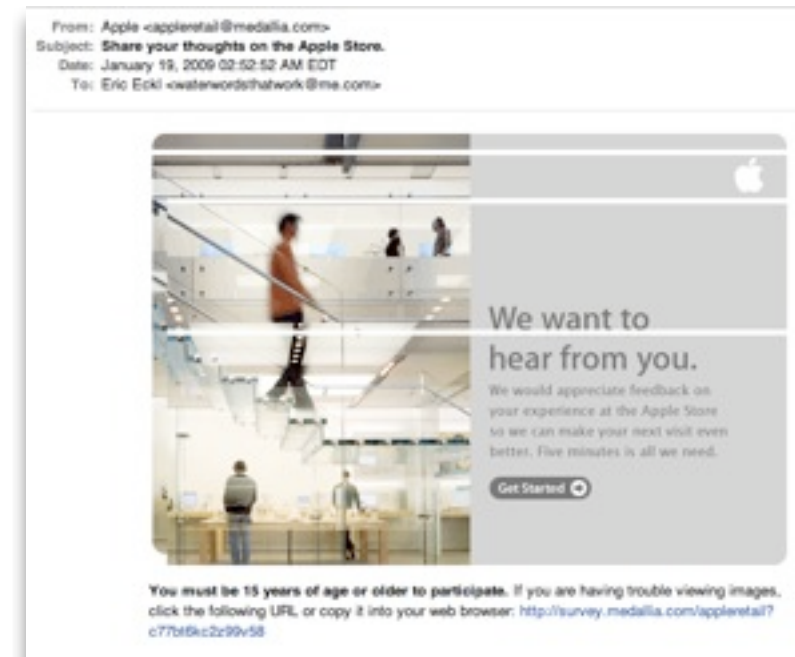
2/21 Work Event at the Duwamish River Bend Hill

5/14 14th Annual Conservation Awards Breakfast

[More events...](#)

Followup Survey/ Final Report

- Did they clean up their act?
- Did they tell a friend?
- Was newsletter useful?



Timing Considerations

- All our target behaviors become more common as it gets warmer, but...
- We must complete the market research before we finalize the website
- We must finalize the website before we develop the ads

Market Research Brainstorm

What Materials Shall We Test

- Brochures?
- Posters?
- Radio ads?
- TV Ads?
- What else?

Messages to Test

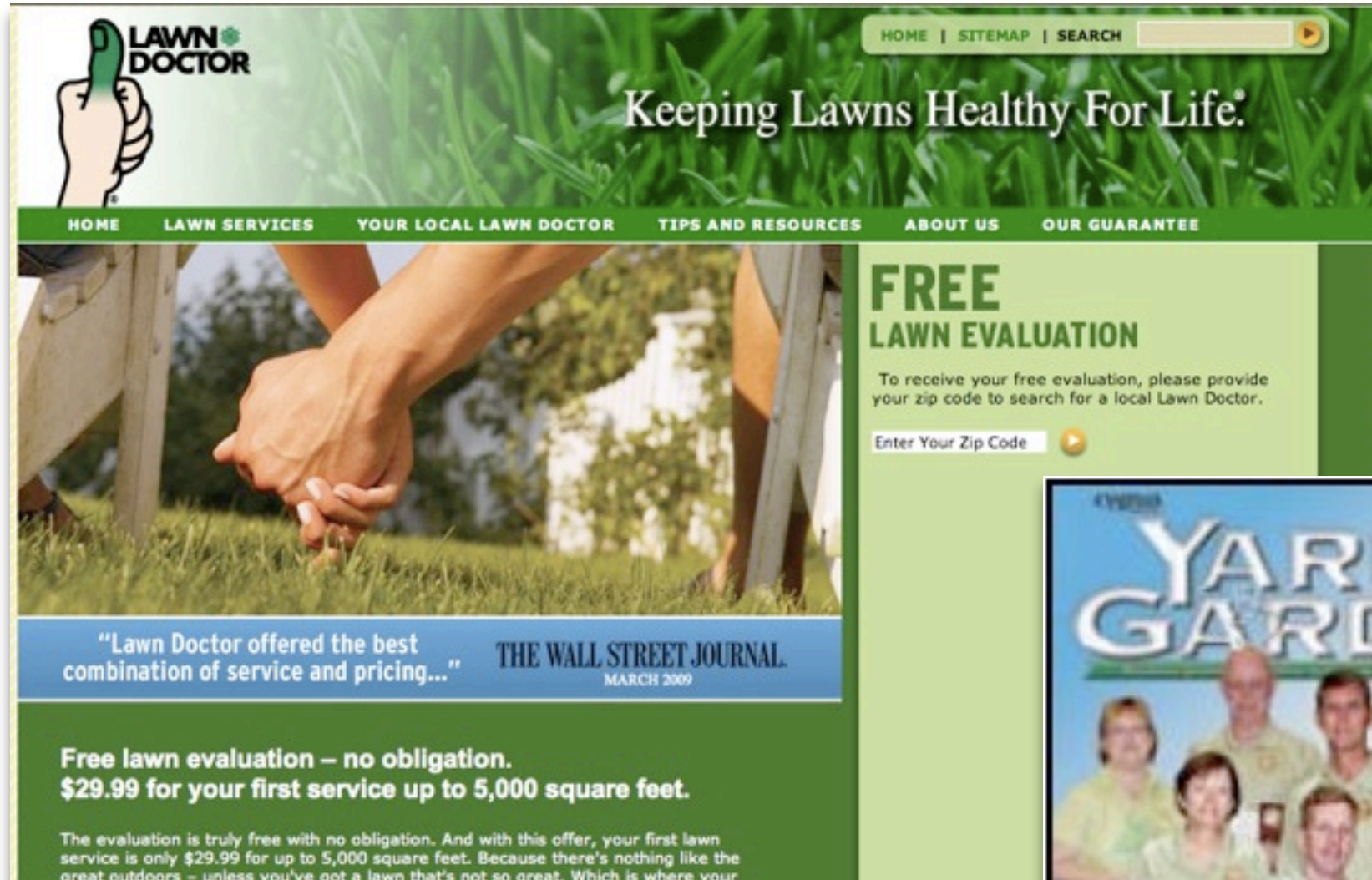
- It's not cool to pollute the water
- *Everybody else* is behaving responsibly
- It's the right thing to do
- Pollution makes animals sick
- What else?

Sign Up “Offers”

- News about local dog / yard / auto events
- Tips for local dog / yard / auto services
- Coupons for dog / yard / auto businesses
- Classes of interest to dog / yard / auto enthusiasts
- What else?

Website Discussion

Lawn and Garden



LAWN DOCTOR

HOME | SITEMAP | SEARCH

Keeping Lawns Healthy For Life.

HOME | LAWN SERVICES | YOUR LOCAL LAWN DOCTOR | TIPS AND RESOURCES | ABOUT US | OUR GUARANTEE

FREE LAWN EVALUATION

To receive your free evaluation, please provide your zip code to search for a local Lawn Doctor.

Enter Your Zip Code

"Lawn Doctor offered the best combination of service and pricing..." **THE WALL STREET JOURNAL** MARCH 2009


Free lawn evaluation – no obligation. \$29.99 for your first service up to 5,000 square feet.

The evaluation is truly free with no obligation. And with this offer, your first lawn service is only \$29.99 for up to 5,000 square feet. Because there's nothing like the great outdoors – unless you've got a lawn that's not so great. Which is where your



Auto


En Español Contact Us Newsletter Ready to Save Gas GIFT CARDS SHOP ONLINE

Advance Auto Parts 

Keep the wheels turning.

Oil Change Special BONUS!
\$2 off on any Air Filter or Cabin Air Filter with purchase of any Oil Change Special!

Shop Online
Advance Know-How
Store Locator
In-Store Services
Career Opportunities
Weekly Ads
Product Information
Specials
Sponsorships


Buy Advance Auto Parts Gift Cards Online!
Starting Denominations at: \$10, \$25, \$50, \$100
- Click here to buy online -

About Us Press Events & Promotions Investor Relations Site Map Search GO

Events and Information → Consumer Education → Locate a Store Near You →

Webcast Replay - Advance Auto Parts presented at the Raymond James Conference on March 10, 2009 [Read More](#)

Q4 2008 Earnings Release February 19, 2009 [Read More Webcast Replay](#)


GRAND OPENINGS! [Read More](#)

How-to video clinics. Watch and learn how to do it yourself!

Go Mobile
[AdvanceAuto.mobi](#)
FREE on your cell phone.

Alternative Fuel Information

Recall Information
[Click here for more details](#)



SHOP VIDEO CAR

TESTED: 2010 MUSTANG GT; PONTIAC SOLSTICE COUPE

MOTOR TREND

APRIL 2009 • • • • • MOTOR TREND.COM

AMERICA'S TOP 40 NEW CARS!

FROM HYPERFAST EXOTICS TO GAS MISERS
THESE ARE THE BEST YOU CAN BUY



THE Z/28 RETURNS
THE ULTIMATE CANARD IS READY TO GO
THESE ARE THE BEST YOU CAN BUY

BMW 335d: THE ULTIMATE TORQUE MACHINE

CAR AND DRIVER

APR 09

4 BEST-BUY SPORTS COUPES!



BMW 335d
MAZDA RX-8
NISSAN 370Z
PONTIAC SOLSTICE GXP

2010 TADIRUS SHO

FAMILY SEDAN SHOOT-OUT
HONDA CIVILIC AGAIN... BUT JUST BARELY

magazines.com

 DOES EVERYTHING FOR LESS

TIRES AND WHEEL DEALS ARE TAKING A TURN FOR THE BETTER

CLICK THE LINKS BELOW TO SAVE ON TIRES, PARTS AND SERVICE.

TIRES
From trucks to ultra-high performance tires, Pep Boys has the tire to fit your car and budget.

IN-STORE SPECIALS
Find discounts, updates, and current offerings for a Pep Boys in your area.

FIND YOUR LOCAL PEP BOYS
With Pep Boys, a great deal is always just around the corner. Click here to find a Pep Boys near you.

Dogs

PETSMART See our current promotions > in-storespecials emailsign-up giftcards

Search entire site for

DOG CAT BIRD WILD BIRD FISH REPTILE SMALL PET SALE Sign-in CART: 0 Items \$0.00

PETSMART.COM

Store Locator
Zip Code
See Store Grand Openings

Email Exclusives
Sign up for special offers and product news.
Sign-up today to receive our PawSpectives® email newsletter! By subscribing to PawSpectives®, you'll receive exclusive email offers, advanced product and in-store event notices, and much more.
Email Address

Shop PetSmart.com
DOG
Gates & Doors
Training & Behavior
Crates & Kennels
See all...
CAT

Let's Pawty!
Visit Pet Birthday Central

The place for:



- Up to 20% savings
- In store event
- Online photo contest
- Articles & tips
- Birthday Club sign-up

ANNOUNCING THE Online Pet Birthday Photo Contest
Now - March 30, 2009
Send us your pet's birthday celebration photos and you could win!

Let's Pawty!
\$5.99 flat shipping 1
Flea & Tick 2
Birthday Central 3
Eukanuba Prebiotics 4



Structure

						<input type="text" value="Receive Updates Via Email: Enter your Address Here"/> <input type="button" value="Go"/> 					
Home	Partners	For Dog Lovers	Shade Tree Mechanics	For Green Thumbs	News						
<p>What should we put here?</p>											

Structure



Receive Updates Via Email: Enter your Address Here

Go



Home

Partners

For Dog Lovers



Shade Tree
Mechanics

For Green
Thumbs

News

What should we put here?

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Receive Updates Via Email: Enter your Address Here

Go



Home

Partners

For Dog Lovers



Shade Tree
Mechanics

For Green
Thumbs



News

What should we put here?

Structure

						<input type="text" value="Receive Updates Via Email: Enter your Address Here"/> <input type="button" value="Go"/> 	
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Home		Partners		For Dog Lovers		Shade Tree Mechanics		For Green Thumbs		News	
<p>What should we put here?</p>											

Final Report

Team Coordination

Chesapeake Network



Eric Eckl: [Sign-Out](#) | [My Profile](#) | [My Groups](#) | [Email Settings](#)
[Admin Tools \(Turn Edit Links On\)](#)


WELCOME | MY PAGE | PEOPLE | GROUPS | CALENDAR | BLOGS | DISCUSSIONS | RESOURCES


Do Great Things

Want to know...

which of your friends and colleagues are already on the Chesapeake Network? Check out the [Community Directory](#).

who is working to restore waterways in your city or state? Search using "tags" another term for keywords under the [Advanced People Search](#).

Got Blenny?



Do you know Blenny like I know Blenny? Check out Jason's [Chesapeake Bay Fishes Blog](#)

Got a Date? Let us know...

Welcome to the Chesapeake Watershed Network

The Chesapeake Watershed Network is a community of organizations and individuals working to protect and restore the land and waters of the Chesapeake Bay Watershed. Our online community facilitates networking and cooperation among its members by providing tools, resources and connections to help its members further their efforts.

[Register Now to start using Chesapeake Network](#)

Don't know where to start? First, [add a description of yourself](#). Next, find a photo of yourself to [upload for your profile](#)!

Other tips for using Chesapeake Network


Do you know what's happening the in Bay today?

If not, consider signing-up for Bay News to keep up with the latest news stories about the Chesapeake Bay and its watershed. Bay News is a daily compilation of links to news articles from local and national publications discussing the restoration, health and culture of the Chesapeake Bay and its watershed.

Sign-up to start receiving your news [HERE](#).

Do you have a Chesapeake Bay or a watershed photo you're proud of? Send it to Chesapeake Network and we'll post it on the welcome page. Upload it [here](#) and include a brief description of the photo and your organization.

Check out other people's images and rate them as well--we'll pick the highest rated ones and put them on the welcome page.



CWN Calendar

Find out what's going on in your watershed. Let us know what your up to--Check out the [Calendar](#)

New Groups

Visit these new groups:

[St Mary's River](#)

[Great Valley Stormwater Alliance](#) to discuss stormwater issues in karst regions

Site Statistics






Members in Network: 883
Groups: 88
Message Posts: 1,275
Shared Resources: 181
Blogs: 23

















Chesapeake Network

Recent Messages [\[show all\]](#)

-  **Re: Social Network for Public Servants**
Eric Eckl
-  **Re: Social Network for Public Servants**
Todd Janeski
-  **Social Network for Public Servants**
Eric Eckl
-  **RE: help with chatter--advise**
Marty Kearns
-  **Re: help with chatter--advise**
Eric Eckl

Type Name / Description

-  **March meeting material**
Please review before or during meeting
-  **Draft Marketing PowerPoint for ChesNet**
Two uses: You guys use it as a PowerPoint. I tweak it and make a YouTube it (some layout...)
-  **Draft Narrative for CWN work plan Dec-June**
For Dec. 5 discussion
-  **Draft budget for Dec. 5 meeting**
A draft for phase II
-  **Nov. 13 Meeting notes**
Notes with PPT Nov. 13 meeting

-  **Amanda Tipton Bassow** 
Program Director, Chesapeake Programs, National Fish and Wildlife Foundation
-  **Jamie Baxter**
Program Director, Chesapeake Bay Trust
-  **Jonathan L. Doherty**  
Program Manager, Chesapeake NEMO
-  **Eric Eckl** 
Principal, Water Words That Work, LLC
-  **Lou A. Etgen** 
Interim Director, Alliance for the Chesapeake Bay
-  **Amy Handen**
Watershed Coordinator, Chesapeake NEMO
-  **Todd Janeski**
Coastal NPS Manager/ VA NEMO Coordinator, VCU/ VDCR
-  **Marty Kearns** 
Executive Director, Green Media Toolshed
-  **Donna C Morelli** 
PA Director, Alliance for the Chesapeake Bay

Northern Virginia
Clean Water Partners

Planning Meeting
Friday, May 1, 2009
10 a.m. - NOON

AGENDA

- I. Overview of Campaign Timeline
- II. Discussion on Survey Results, implications for ads & websites
- III. Radio Ad Discussion – choice, placement
- IV. Discussion of Website Content, process for adding content
- V. Presentation of three draft designs, select favorite, discuss revisions

Northern Virginia Clean Water Partners

Survey Results
4/30/2009

Summary

- In April 2009, Water Words That Work, LLC and Amplitude Research conducted an online panel survey of Northern Virginia residents to attempt to discern the most effective messages for an advertising campaign to encourage individuals to take action to reduce pollution.
- 500 adults from the participating jurisdiction completed a 15 minute online questionnaire, which involved listening to and rating two radio ads under consideration.
- Some questions in the online survey were written in an identical manner to past telephone surveys conducted by the partners -- to evaluate the impact that a shift in market research methodology has on the results.
- **This memo summarizes the findings most relevant to the project's immediate next steps:** Selecting the appropriate radio ad, building out web page content, and crafting our online ads.
- **Full survey results are posted in the Only Rain workspace in the Chesapeake Network.**

Message Testing

- Respondents rated different messages as most compelling for each behavior. There was no single overarching “best” message.
- For **fertilizer web pages and advertisements**, the most compelling messages are “before it’s too late,” “best for the yard,” and “working together makes a difference.”
- For **dog doo web pages and advertisements**, the most compelling messages are to alert pet owners that “dog doo pollutes,” and that “working together makes a difference.”
- For **motor oil disposal web pages and advertisements**, the most compelling messages were “even a little oil is a lot of pollution” and “you’ll pay a big fine if get caught.”
- Respondents are far and away most eager to sign up for an email newsletter that contains **money-saving coupons** they can use for their dogs, lawns, and vehicles.
- Among the two radio ads, respondents clearly preferred the “**Tom and Sandy Hillman**” ad that mimics the old Folgers Crystals coffee commercials.

Demographic Summary

- The shift from traditional telephone polling to an online panel clearly altered the demographic makeup of the sample
- However, respectable samples were gathered from all major age brackets and ethnic groups, as well as each participating jurisdiction.
- Compared to the 2008 sample, the 2009 sample is noticeably younger, somewhat whiter, and a little bit more female.
- Compared to the 2008 sample, the 2009 sample is slightly less likely to be involved in lawn care or walk a dog, and equally likely to change their own motor oil.
- Both samples display similar patterns of knowledge about sources of pollution in local waters, and similar faith in the importance of individuals in rectifying the problem.

Message Testing Highlights

Fertilizer

Most panel respondents report that they were unfamiliar with experts recommendation that they fertilize in the fall to minimize water pollution.

Their response to the second question should be interpreted to indicate a basic receptiveness to the notion that individual actions to reduce water pollution is important -- not as commitment on the part of the homeowners to alter their fertilizing habits.

When it rains, lawn fertilizer can get washed down storm drains, into local waterways, and eventually into the Potomac River and Chesapeake Bay. Some experts recommend that homeowners fertilize their lawns only in the fall to reduce environmental impacts. Have you heard this recommendation before?







Legend	Response Choice	Frequencies	Count
1	Yes	29.0%	145
2	No	61.0%	305
3	Don't know / not sure	10.0%	50
	Total (N)		500

Does hearing this recommendation make you personally more or less likely to fertilize only in the fall? Or, if you do not fertilize a lawn yourself, does this make you more or less likely to encourage others to fertilize only in the fall?

Legend	Response Choice	Frequencies	Count
1	Much less likely	1.2%	6
2	Somewhat less likely	3.8%	19
3	Would not change my behavior	18.8%	94
4	Somewhat more likely	44.2%	221
5	Much more likely	32.0%	160

Fertilizer Messages

Now, which of the statements you just rated do you think would be the most effective at persuading you (or others) to fertilize the lawn only in the fall? (Select only one)

Legend	Response Choice	Frequencies	Count
1	When it rains, fertilizer gets washed down storm drains and becomes a big polluter of local waterways.	 16.8%	84
2	If we don't reduce pollution from fertilizer runoff soon, it will be too late to save some species of crabs and fish.	 21.0%	105
3	Many yard professionals say fertilizing in the fall is actually the best time for lawn health.	 20.0%	100
4	Many homeowners are switching to fall fertilizing, and this has already reduced pollution. If we all work together and more switch, it can make a big difference.	 19.6%	98
5	Water pollution affects everybody and the trends for local waterways are alarming. It's urgent that homeowners do their part to keep the water clean.	 11.4%	57
6	We enjoy clean water here in Northern Virginia. Homeowners should do their part to ensure future generations enjoy this too.	 11.2%	56
	Total (N)		500

When asked to pick among the most compelling fertilizer messages, respondents essentially split their vote among three they found most compelling - "before it's too late," "best for the yard," and "working together makes a difference." Simple knowledge of the fertilizer/water pollution connection was seen as less compelling.

Dog Waste

Most panel respondents report that they did not realize that dog doo is, in fact, a significant source of water pollution.

Their response to the second question should be interpreted to indicate a basic receptiveness to the notion that individual actions to reduce water pollution is important -- not as commitment on the part of the homeowners to alter their fertilizing habits.

Some experts say that dog waste (or "dog doo") left on the ground is a significant source of water pollution. That's because the doo is full of germs, and the rain washes it down storm drains into local waterways. Before this survey, have you heard reports or stories discussing dog doo as a significant pollutant of local waterways?







Legend	Response Choice	Frequencies	Count
1	Yes	22.4%	112
2	No	69.6%	348
3	Don't know / not sure	8.0%	40
	Total (N)		500

Does hearing this make you personally more or less likely to pick up after your pet? Or, if you do not have a dog, does this make you more or less likely to encourage others to put dog doo in the trash, not leave it on the ground?

Legend	Response Choice	Frequencies	Count
1	Much less likely	1.6%	8
2	Somewhat less likely	1.8%	9
3	Would not change my behavior	29.2%	146
4	Somewhat more likely	27.6%	138
5	Much more likely	39.8%	199
	Total (N)		500

Dog Waste Messages

Now, which of the statements you just rated do you think would be the most effective at persuading pet owners to pick up dog doo? (Select only one)

Legend	Response Choice	Frequencies	Count
1	When it rains, runoff washes dog waste down storm drains, then it becomes a significant pollutant of local waterways.	 29.2%	146
2	If we don't reduce pollution from germ infested dog doo soon, it will be too late to save some species of crabs and fish.	 15.0%	75
3	If you don't pick up after your dog, your neighbors will think you are rude.	 7.8%	39
4	More owners are picking up dog doo, and this reduces pollution. If we all work together and do the same, it can make a big difference.	 19.0%	95
5	Water pollution affects everybody and the trends for local waterways are alarming. It's urgent that pet owners do their part to keep the water clean.	 17.4%	87
6	We enjoy clean water here in Northern Virginia. Pet owners should do their part to ensure future generations enjoy this too.	 11.6%	58
	Total (N)		500

Panel respondents report that being made aware of the water pollution aspect of dog doo would, in and of itself, be a significant reason to clean up after their pets. Knowing that other dog owners are doing their part and this adds up is the second most compelling reason.

Motor Oil Messages

Now, which of the statements you just rated do you think would be the most effective at persuading people to properly dispose of / recycle motor oil? (Select only one)

Legend	Response Choice	Frequencies	Count
1	If motor oil is dumped on the ground or in storm drains, rain can wash it into local waterways. Even a little oil contaminates a lot of water.	29.8%	149
2	If we don't reduce pollution from dumping motor oil soon, it will be too late to save some species of crabs and fish.	11.0%	55
3	Dumping motor oil on the ground or down a storm drain is against the law; you will get a big fine if you are caught.	24.4%	122
4	There are many convenient locations near you where you can drop off motor oil for recycling.	17.6%	88
5	Water pollution affects everybody and the trends for local waterways are alarming. It's urgent that home mechanics do their part to keep the water clean.	9.6%	48
6	We enjoy clean water here in Northern Virginia. Home mechanics should do their part to ensure future generations enjoy this too.	7.6%	38
	Total (N)		500

When asked to pick among the most compelling motor oil messages, respondents rated “even a little oil contaminates a lot of water” and “big fine if you get caught” as the two most compelling.

Newsletter Offer

Now, which of the offers you just rated would be most likely to persuade you to sign up for an e-mail newsletter about your yard, dog, or car? (Select only one)

Legend	Response Choice	Frequencies	Count
1	Coupons	57.0%	285
2	Tips	11.2%	56
3	Information about classes / educational opportunities	4.2%	21
4	Fun Facts	7.8%	39
5	Advice Column	14.6%	73
6	None of these would interest me at all	5.2%	26
	Total (N)		500

Respondents named money-saving coupons as their runaway favorite reason to sign up to receive an e-mail newsletter from the Northern Virginia Clean Water Partners.

Radio Ads

The following question relates to the ad: "Tom and Sandy Millman."

How would you rate your level of agreement or disagreement with the following statements about the ad you just heard?

	Strongly Disagree	Somewhat Disagree	Neither/Neutral	Somewhat Agree	Strongly Agree	Total (N)	Mean Median	Standard Deviation
Legend	1	2	3	4	5			
The message of the ad is believable.	19 3.8%	59 11.8%	92 18.4%	204 40.8%	126 25.2%	500	3.72 4.0	1.08
The ad is entertaining.	23 4.6%	50 10.0%	91 18.2%	184 36.8%	152 30.4%	500	3.78 4.0	1.12
The ad is persuasive.	15 3.0%	39 7.8%	92 18.4%	223 44.6%	131 26.2%	500	3.83 4.0	1.0
I always ignore ads like this.	90 18.0%	156 31.2%	165 33.0%	62 12.4%	27 5.4%	500	2.56 3.0	1.09
Hearing this on the radio would really catch my attention and influence the way I think about the environment.	26 5.2%	50 10.0%	102 20.4%	211 42.2%	111 22.2%	500	3.66 4.0	1.09
The ad motivates me to be more careful about pollutants that can get washed down storm drains.	20 4.0%	28 5.6%	109 21.8%	206 41.2%	137 27.4%	500	3.82 4.0	1.02

The following question relates to the ad: "It's time we all listened to the children."

How would you rate your level of agreement or disagreement with the following statements about the ad you just heard?

	Strongly Disagree	Somewhat Disagree	Neither/Neutral	Somewhat Agree	Strongly Agree	Total (N)	Mean Median	Standard Deviation
Legend	1	2	3	4	5			
The message of the ad is believable.	8 1.6%	12 2.4%	68 13.6%	212 42.4%	200 40.0%	500	4.17 4.0	0.86
The ad is entertaining.	29 5.8%	72 14.4%	202 40.4%	151 30.2%	46 9.2%	500	3.23 3.0	1.0
The ad is persuasive.	15 3.0%	44 8.8%	106 21.2%	226 45.2%	109 21.8%	500	3.74 4.0	0.99
I always ignore ads like this.	82 16.4%	143 28.6%	160 32.0%	80 16.0%	35 7.0%	500	2.69 3.0	1.13
Hearing this on the radio would really catch my attention and influence the way I think about the environment.	35 7.0%	77 15.4%	139 27.8%	177 35.4%	72 14.4%	500	3.35 3.0	1.11
The ad motivates me to be more careful about pollutants that can get washed down storm drains.	22 4.4%	37 7.4%	121 24.2%	216 43.2%	104 20.8%	500	3.69 4.0	1.02

Respondents solidly preferred the "Tom and Sandy Millman" ad to the "It's Time We All Listened to the Children." Although they found "children" to be more believable, they also reported they would be more likely to ignore it. Panelists rated "Millman" to be more persuasive and attention-getting.

Demographic Highlights

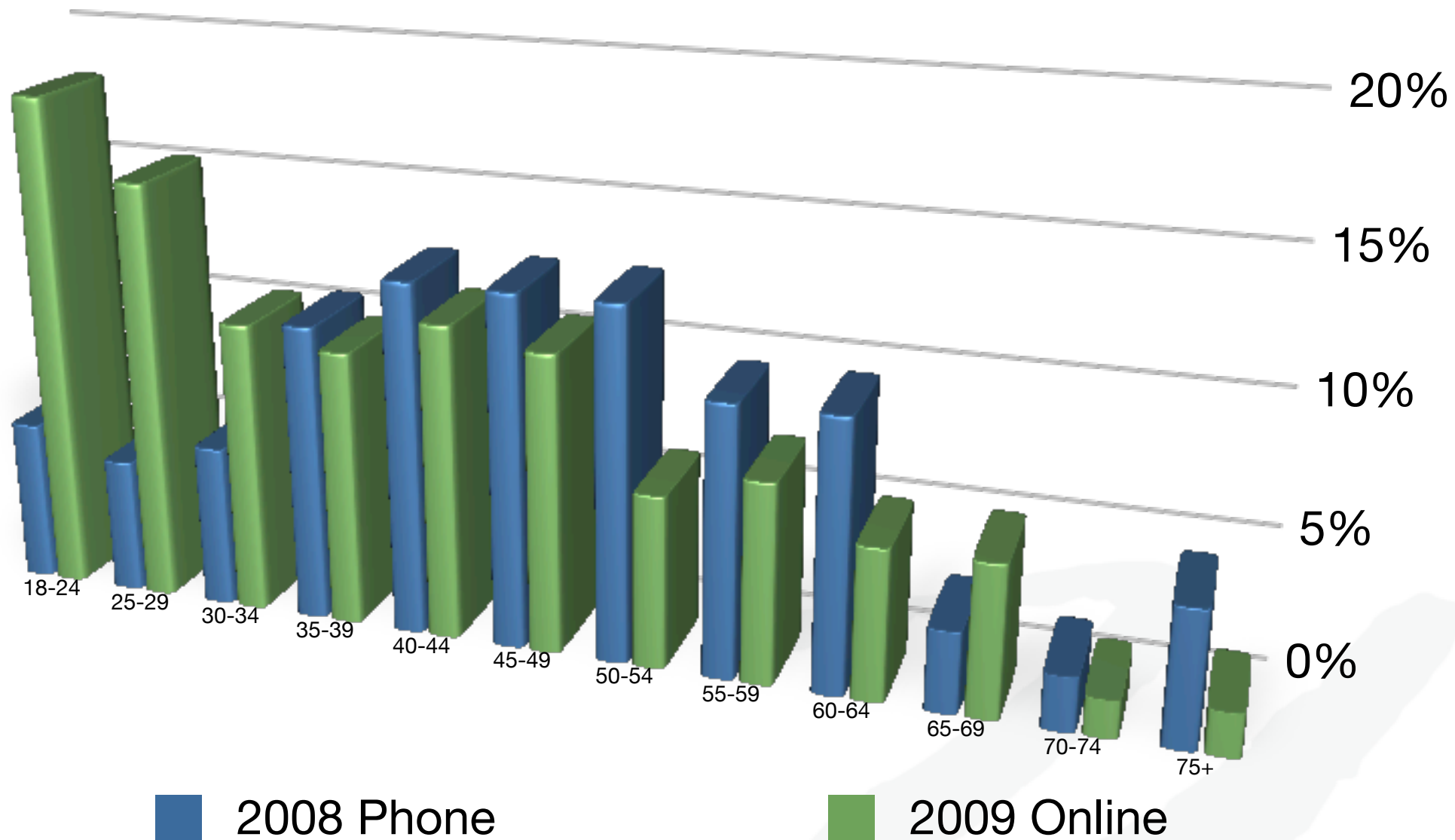
Respondents

Which of the following best describes where you live (county or city)?

Legend	Response Choice	Frequencies	Count
1	Alexandria	12.0%	60
2	Arlington	12.8%	64
3	Dumfries	0.4%	2
4	Fairfax (city of)	1.8%	9
5	Fairfax (county of)	33.8%	169
6	Falls Church	3.4%	17
7	Herndon	3.0%	15
8	Leesburg	3.4%	17
9	Loudoun County	8.6%	43
10	Manassas	2.6%	13
11	Prince William County	13.2%	66
12	Stafford	2.6%	13
13	Vienna	2.4%	12
14	None of the above		0
	Total (N)		500

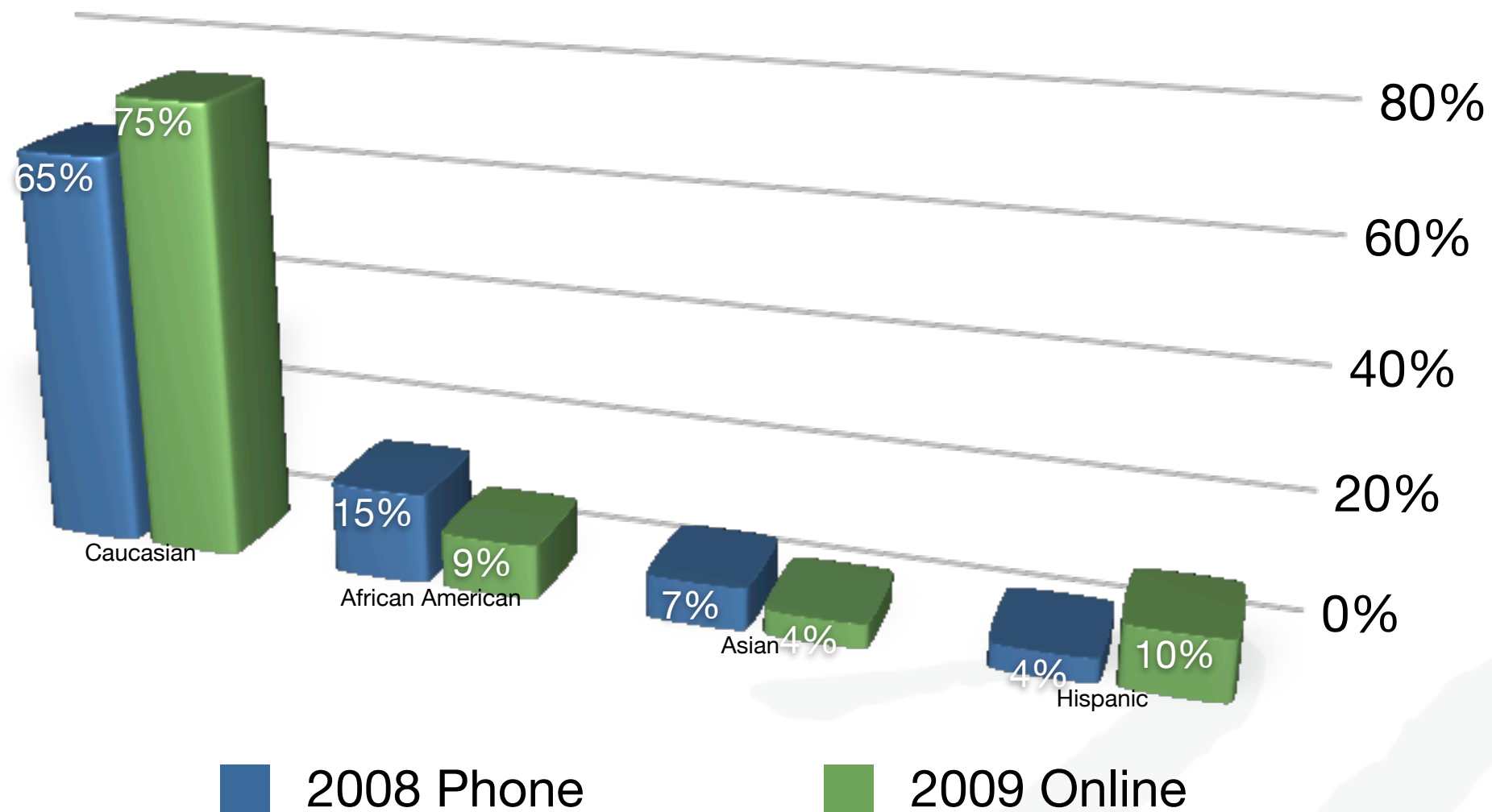
Survey responses were gathered from all participating jurisdictions.

2008 vs. 2009 by Age



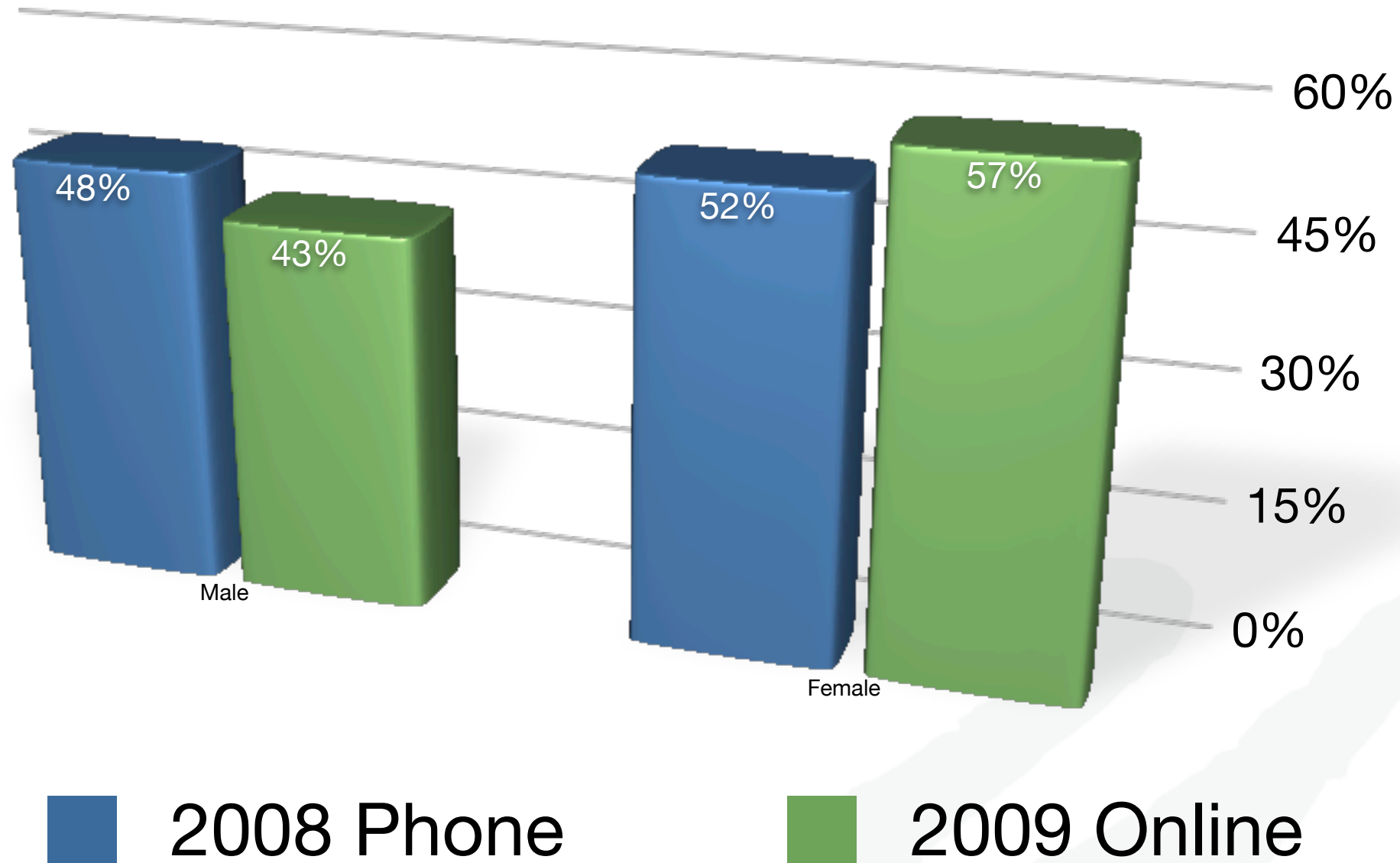
No surprise, the online panel sample includes far more responses from people in their 20s and 30s than the telephone sample. The telephone sample gathered more input from those in their 50s, 60s, and 70s. The methods were roughly comparable for individuals in the 40s.

2008 vs. 2009 by Race



Overall, the 2009 online sample was whiter than the 2008 telephone sample. The online sample more successfully gathered input from Hispanic residents, but reached slightly fewer African-Americans.

2008 vs. 2009 by Gender



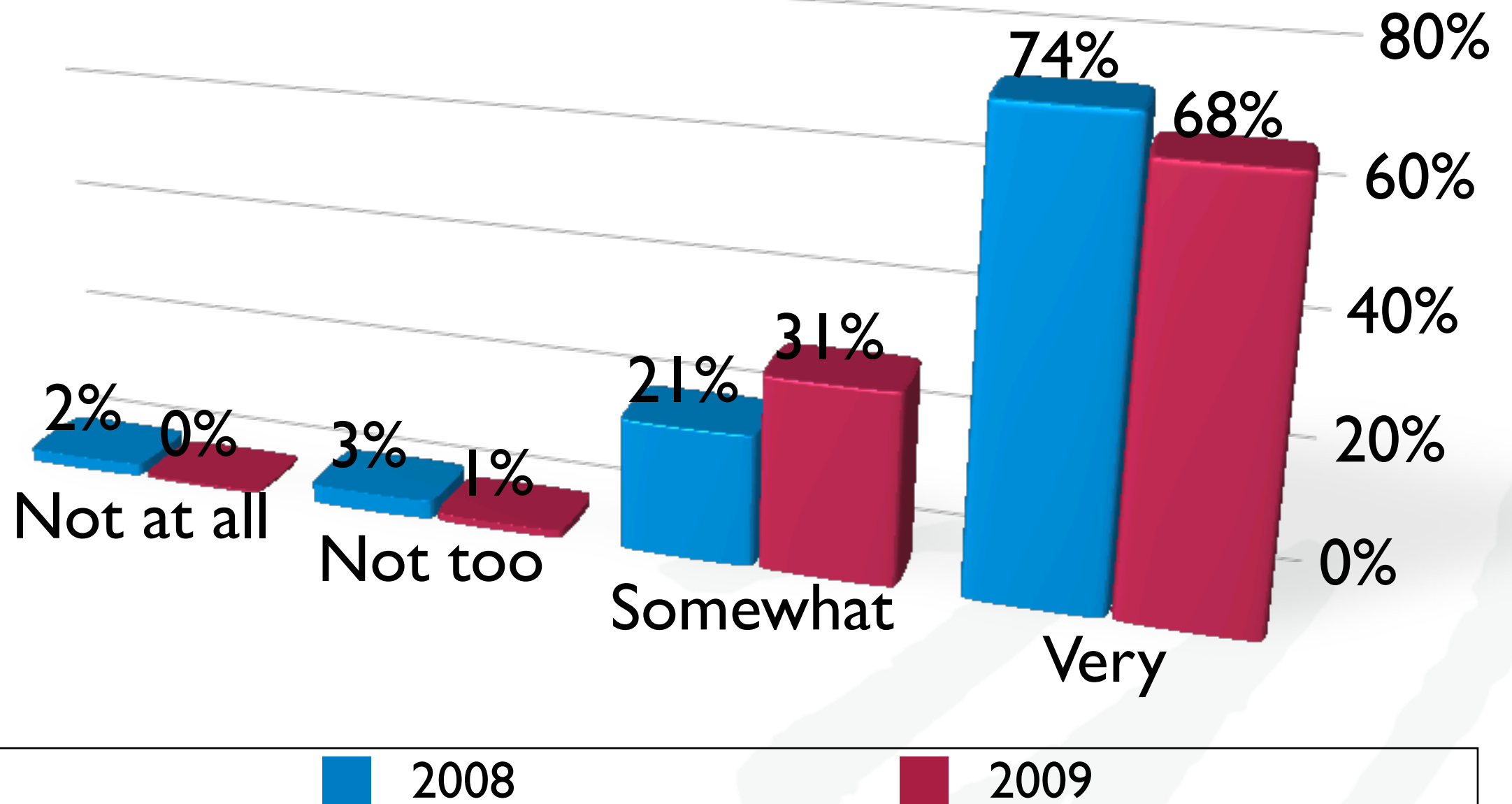
Sources of Pollution

What do you think is the number one cause of pollution in local streams, the Potomac River, and the Chesapeake Bay?

Legend	Response Choice	Frequencies	Count
1	Automobiles	1.4%	7
2	Boats	1.6%	8
3	Chemicals/Chemical runoff	8.0%	40
4	Dumping /Illegal dumping	3.6%	18
5	Fertilizer/Fertilizer runoff/Agricultural runoff	17.2%	86
6	Garbage/Litter/Trash	17.4%	87
7	Industry/Industrial waste	11.4%	57
8	People	10.4%	52
9	Run off (not specific)	12.6%	63
10	Sewage/Waste	8.0%	40
11	Other	4.8%	24
12	Don't know	3.2%	16
13	None/NA	0.4%	2
	Total (N)		500

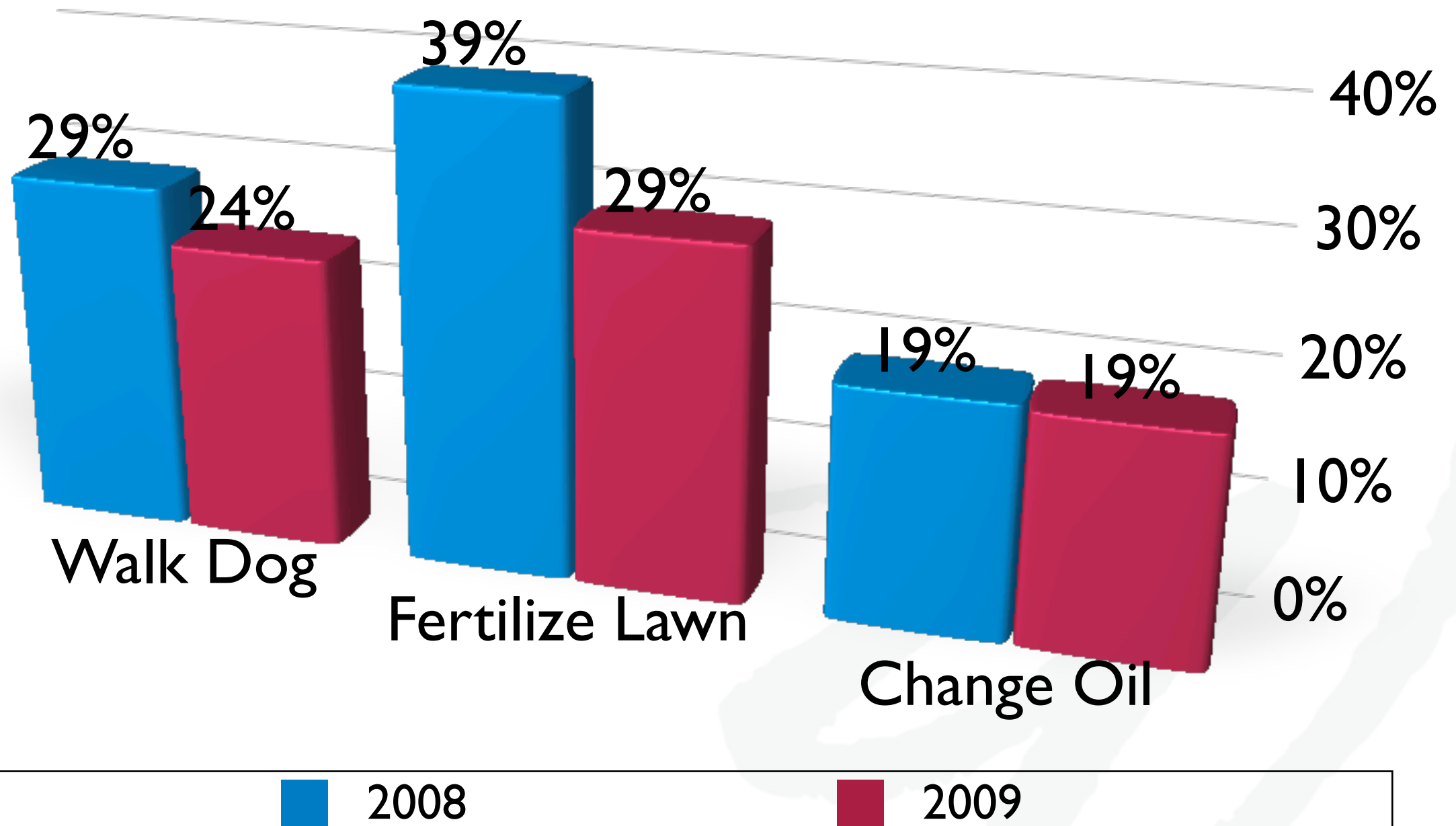
In the 2008 telephone poll, respondents identified these two as the top sources of pollution, as well.

Importance of Individuals



How important do you feel the role of individuals is in maintaining the quality of water in local streams and rivers, the Potomac River and the Chesapeake Bay?

Target Behaviors



Northern Virginia
Clean Water Partners

Planning Meeting
Friday, July 17, 2009
10 a.m. - noon

AGENDA

1. Radio Campaign Summary
2. Overview of Pilot Study
 - a. Background on first phase w/ Google
 - b. Results up to now
3. Campaign Newsletter
4. New Partners & Sponsorship Opportunities
5. MS4 reporting timeline (August/early Sept)
6. Final reporting elements (Fall)
 - a. How much detail, etc

Northern Virginia Clean Water Partners
Regional Stormwater Education Campaign
Radio Summary

July 17, 2009



2009 Northern Virginia
Clean Water Partners

Fairfax County | Arlington County | Loudoun County | Stafford County | Fairfax Water | City of Alexandria | Loudoun Water
City of Fairfax | Town of Herndon | City of Falls Church | Town of Leesburg | Town of Vienna | Town of Dumfries
Northern Virginia Regional Commission | Virginia Coastal Zone Management Program

Overview

- New Ad – Folgers Coffee-themed
“Replacing Bathwater with Stormwater”
- Ran for 3 weeks total (2 weeks on, 2 weeks off, 1 week on)
- Aired a total of 651 times over 6 radio stations

Radio Station List

	Station Name	Number of Spots
1	WASH-FM (97.1 – Soft Adult Contemporary)	141
2	WBIG-FM (100.3 – Classic Hits)	162
3	WJFK-FM (105.1 – CBS Infinity/Talk-Sports)	81
4	WLZL-FM (99.1 – Spanish Tropical)	81
5	WTOP-FM (103.5 – News/Talk)	87
6	WWDC-FM (101.1 – Alternative)	99
Market Total		651

3

2009 Radio Campaign Reach

Total Number of Spots	651
Average Audience Size (Total Gross Ratings Points)	546.0
Percentage of Target Audience Reached & Average Number of Exposures	48% with an average of 11 exposures
Individual Exposures (Unique Impressions)	355,446

4

Comparison 2005 - 2009

	Campaign Goal	2005	2006	2007	2008	2009
Months Aired (Number of Weeks)	----	June and July (4)	April and May (4)	April and May (4)	April and May (4)	May and June (3)
Budget	----	150,000	150,000	150,000	150,000	80,000
Number of spots aired	----	895	1,115	1,111	1,064	651
Unpaid Media Acquisition (Bonus spots, PSAs)	----	\$63,785	\$63,785	~\$100,000	~\$300,000	~\$100,000
Total Gross Ratings Points*	600	831.2	1014.8	1,008.4	688.8	546.0
Percentage of Target Audience Reached & Average Number or Times Exposed	60% with an average of 10 exposures	70% with an average of 12 exposures	72% with an average of 14 exposures		58% with an average of 12 exposures	48% with an average of 11 exposures
Unique Impressions**	----	681,458	1,031,300	1,008,400	733,096	355,446

*Total Gross Rating Points are a unit of measure of audience size. It measures how well the campaign reached our target audience by reflecting the percentage of the target audience reached multiplied by the number of exposures or frequency.

**Unique Impressions are the estimated number of exposures of the radio message to individuals.

5

Added Value

- Web banners
- Recorded 5s, 15s, 30s, and 60s PSAs
- Additional week of free spots on WJFK and WLZL
- Sponsorships

6

Web Banners



7



Only Rain 2.0

Campaign Report

7/17/2009

Eric Eckl

The Spirit of the Pilot



“Half my advertising
is wasted, I just don’t
know which half.”

-- *John Wannamaker*

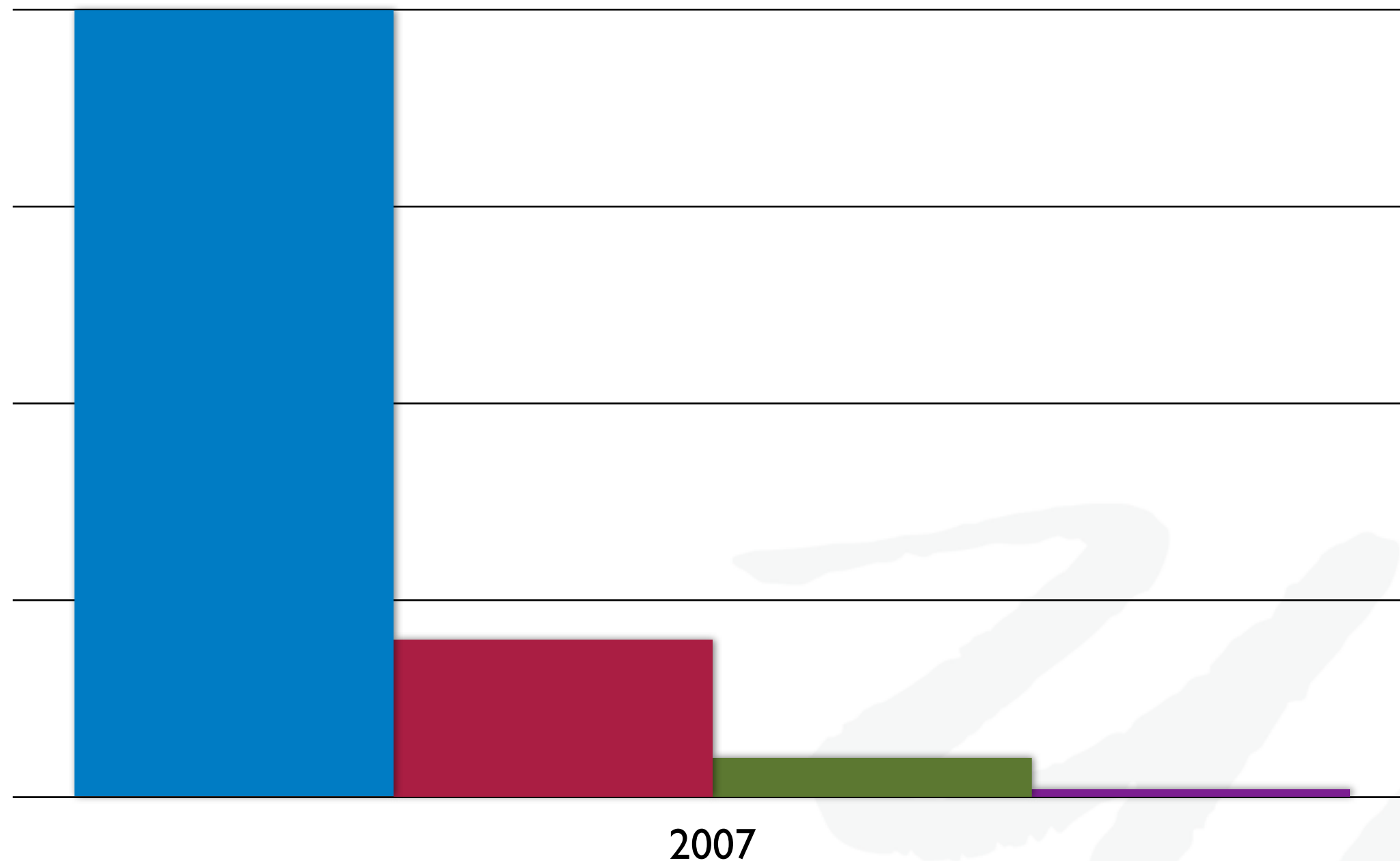
1838-1922

Father of Modern Marketing

Topics Today

- Big Picture Traffic Report
- Comparing Channels
- Comparing Topics
- Comparing Apples vs. Oranges
- Thoughts on a next campaign

Modern Marketing “Slope”



Our Goals

ONLY RAIN
(NO CONTAMINANTS)
DOWN THE STORM DRAIN

Northern Virginia Clean Water Partners

Home About Us Dog Lovers Green Thumbs Home Mechanics News Event Calendar

Only Rain Down the Drain!

“ DID YOU KNOW...polluted runoff is the number one cause of water pollution in Northern Virginia? That's right, the very same rain that washes streets, yards, and parking lots clean is sending chemicals, germs, and trash down the drain and into the local creeks where our kids play and fish and animals live!

That's the bad news. But here's the good news. If we work together, we can clean it up!

You Can Make A Difference!

Making sure there is enough clean water is everybody's responsibility! Here's how you can do your part to keep local waterways clean and healthy for everyone:

- x **Fertilize in Fall, if at all** — applying too much fertilizer to the yard is a rookie mistake. Yard experts test their soil before

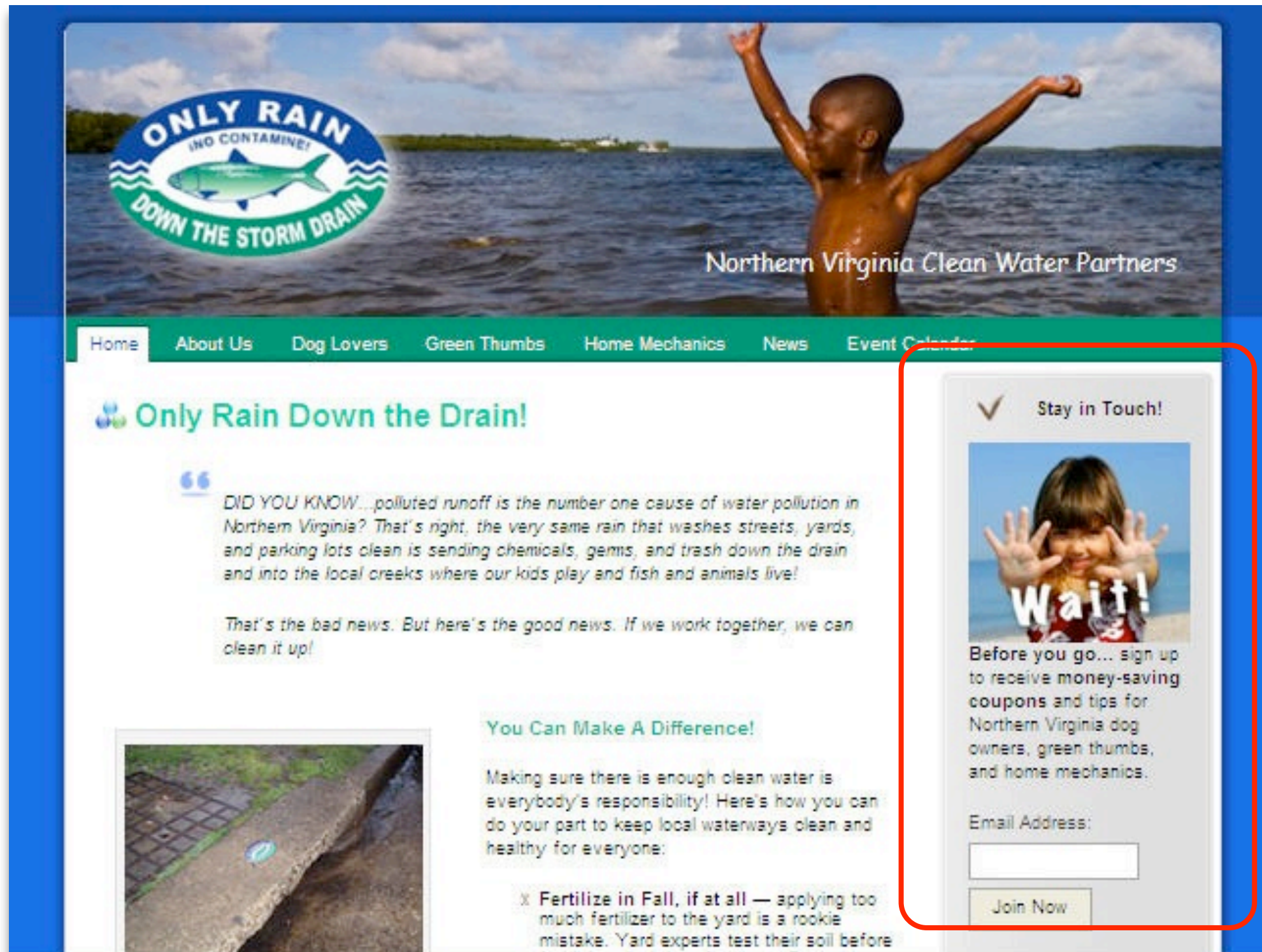
Stay in Touch!

Wait!

Before you go... sign up to receive money-saving coupons and tips for Northern Virginia dog owners, green thumbs, and home mechanics.

Email Address:

Our Goals



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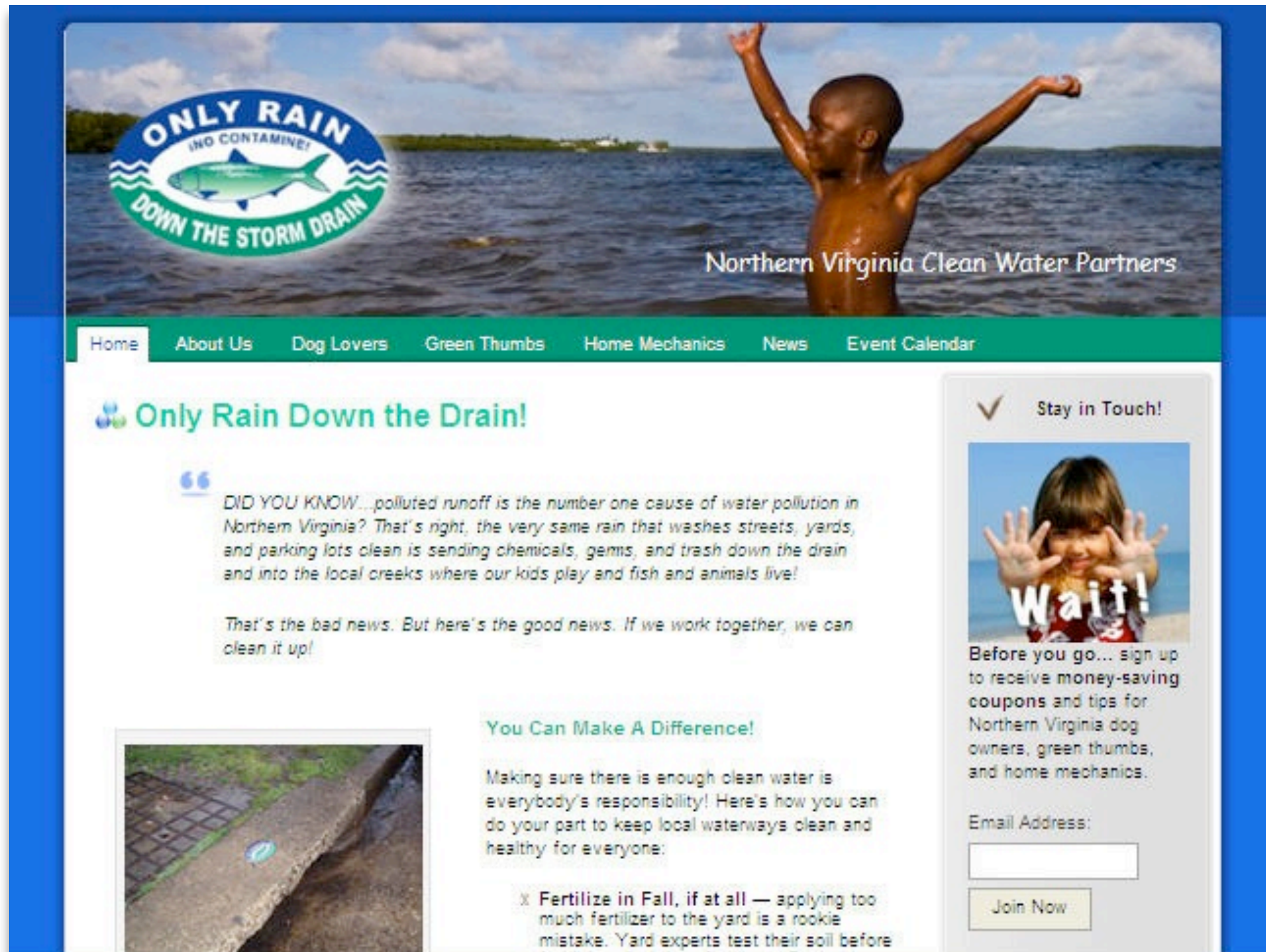
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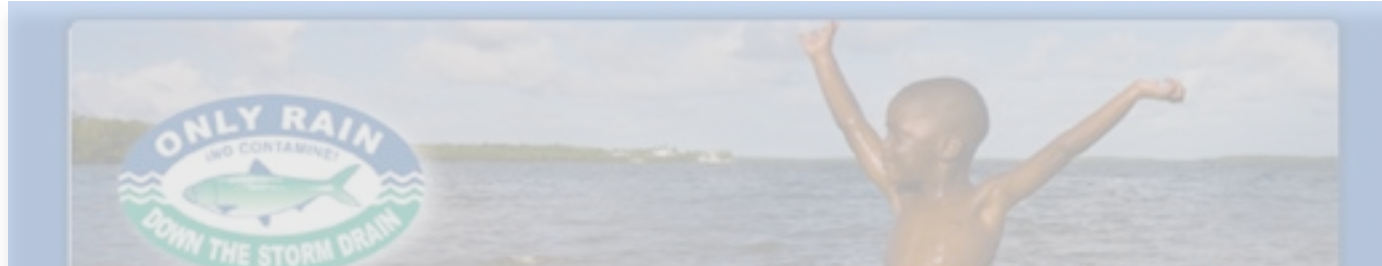
Stay in Touch!

Wait!

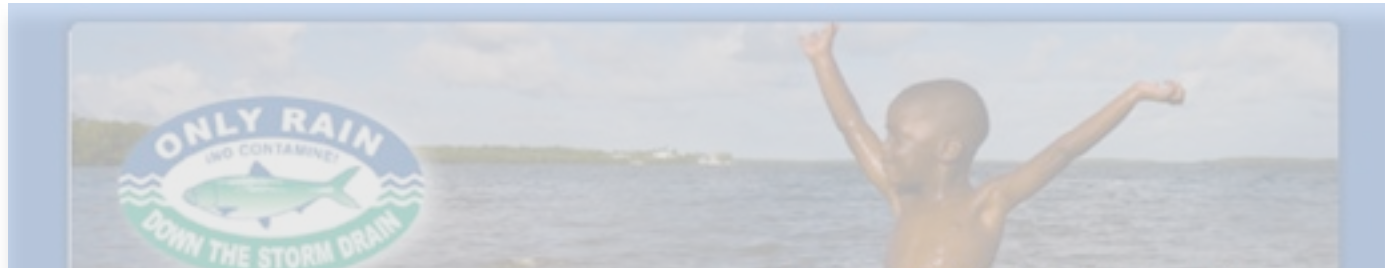
Before you go... sign up to receive money-saving coupons and tips for Northern Virginia dog owners, green thumbs, and home mechanics.

Email Address:

Our Goals

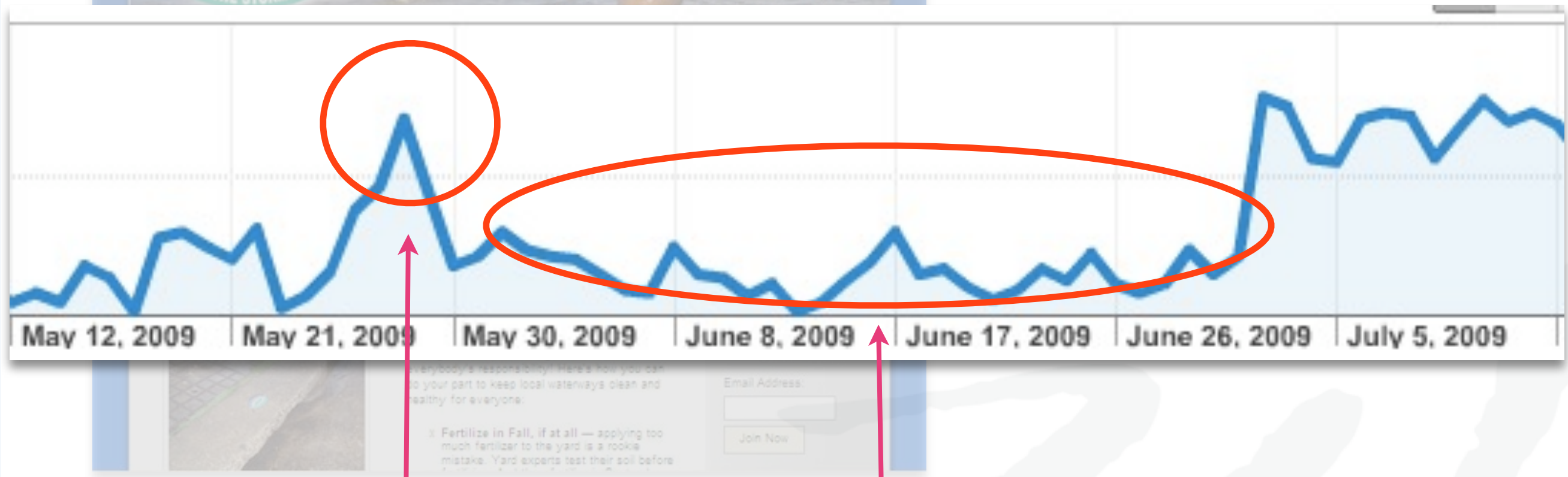
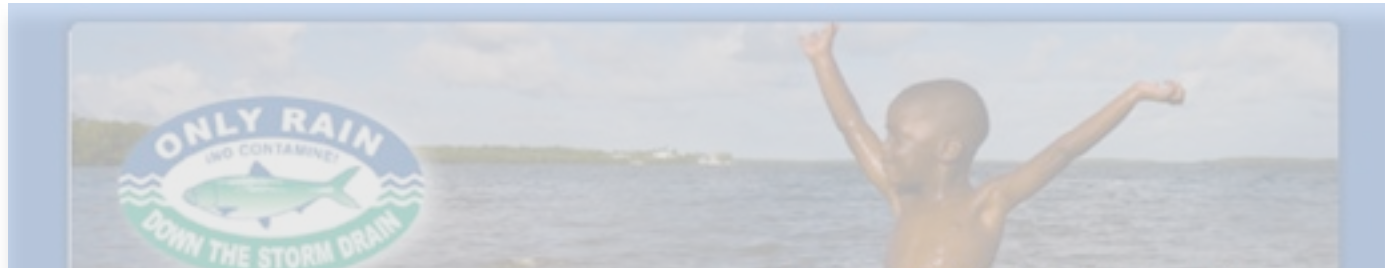


Our Goals



Radio Ads

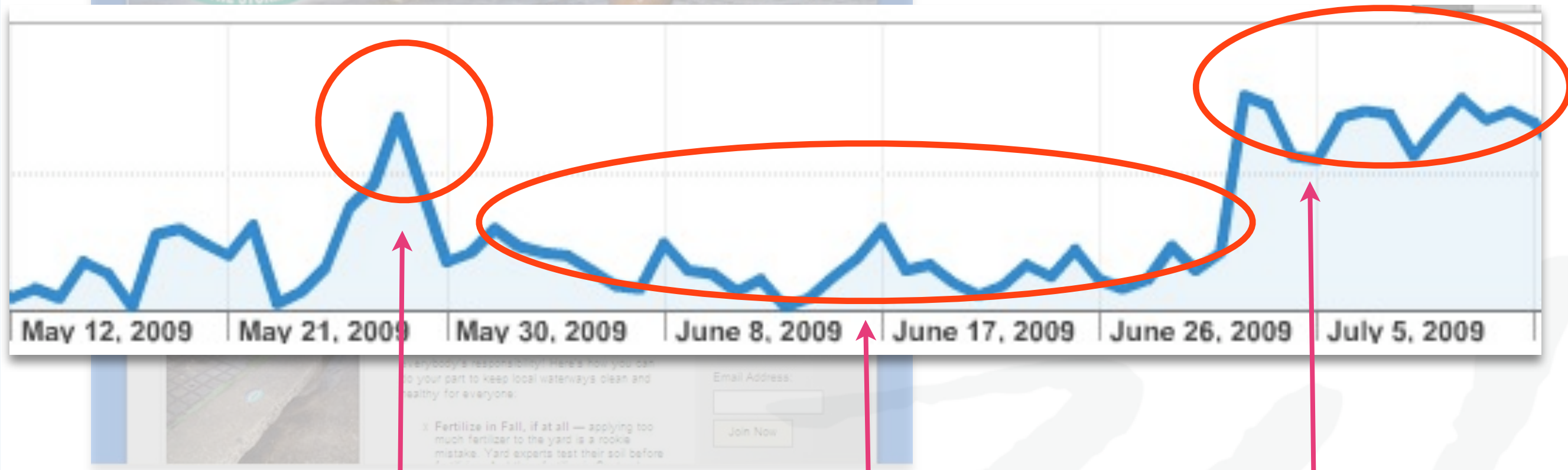
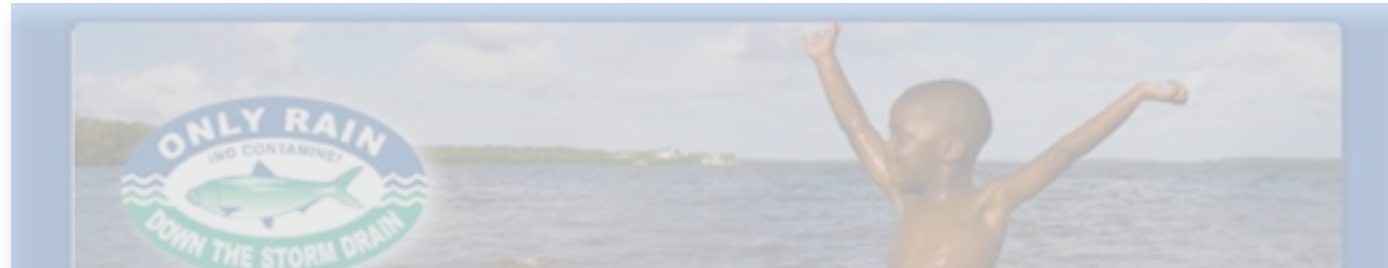
Our Goals



Radio Ads

Google Ads

Our Goals



Radio Ads

Google Ads

MySpace/
Facebook/
Yahoo! Ads

Overview: Costs

Channel	Spent To Date	Total Impressions	Cost Per Impression	Total Ad Clicks	Cost Per Click
Google	\$198.37	476,486	\$0.0004	228	\$0.87
Yahoo!	\$307.76	47007	\$0.0065	57	\$5.40
Facebook	\$633.90	2,130,268	\$0.0003	786	\$0.81
MySpace	\$69.66	134445	\$0.0005	129	\$0.54
Total	\$1,209.69	2,788,206	\$0.0078	1200	\$1.01

* MySpace ads ran nationwide for a few days in March by mistake, we racked up \$242.88 in charges before we caught that.

Overview: Subscriptions

Week Starting	Radio Ads Running?	Total Visits	Ad visits	Other Visits	Email Signups	Total Subscribers	Signup Rate
5/11		53	0	53	3	3	5.66%
5/18	Y	128	0	128	3	6	2.34%
5/25	Y	229	17	212	8	14	3.49%
6/1	N	113	23	90	1	15	0.88%
6/8*	N	68	13	55	1	16	1.47%
6/15	Y	97	21	76	4	20	4.12%
6/22	A little bit	81	62	19	1	21	1.23%
6/29	N	296	278	18	6	27	2.03%
7/6	N	201	181	20	6	33	2.99%
7/13	N	204	183	21	4	37	1.96%
7/20							
7/27							
8/3							
8/10							
8/17							
8/24							
Campaign Total:		1470	778	692	37	37	2.52%

Upwards of 90% of our traffic is generated by online advertisements now.

Our eMail signup rate is hovering steady at more than 2.5% of all visitors.

This is a healthy rate.

* Ads only ran 6/9 to 6/12 - campaign paused automatically

Comparing Channels

What We've Learned So Far About Channels

- Most channels appear to be worthwhile
- But one of our advertising channels -- Yahoo! -- may be a waste of money.
- Visitors from Yahoo! cost **more than 6x** what other visitors cost
- Recommend tweaking the Yahoo! ads for a couple of weeks to see if we can bring costs down - but if we can't, fugetaboutit.

Google/Yahoo vs. Facebook/MySpace How They Work

Channel	Google/Yahoo	Facebook/MySpace
How We Target	<p>Keywords that we think our prospects might type into the search engine.</p> <p>We reach them when they are actively searching for our topic.</p> <p>Further, we limit our search to Northern Virginia suburbs.</p>	<p>Keywords that the Facebook/MySpace user puts on their profile page.</p> <p>We reach them if they tell their friends the topic is important to them.</p> <p>Further, we limit our search to Northern Virginia suburbs.</p>

Google Ads

Google [Advanced Search](#) [Preferences](#)

Web [Show options...](#) Results 1 - 10 of about 37,700 for [recycle motor oil arlington](#). (0.29 sec)

Recycling Used Motor Oil and Battery Disposal : Water & Wastewater ...

Jul 14, 2008 ... Name of Center, **Motor Oil?** Oil Filter? Antifreeze? ... **Arlington County Fire Stations with Battery Recycling Containers ...**
www.arlingtonva.us/Departments/EnvironmentalServices/wpcp/EnvironmentalServicesWpcpUsedoil.aspx - 24k - [Cached](#) - [Similar pages](#) -

Household HazMat Program : Household HazMat : Arlington, Virginia

Arlington County Residents can bring household hazardous materials, Motor Oil Recycling and Drop-Off Locations: Motor oil should be brought to one of ...
www.arlingtonva.us/departments/EnvironmentalServices/wpcp/EnvironmentalServicesWpcpHouseholdHazMat.aspx - 34k - [Cached](#) - [Similar pages](#) -


Sponsored Links

[Change Your Oil Yourself?](#)
 Don't mix oil and water by mistake
 Tips and coupons for home mechanics
onlyrain.org/home-mechanics/
 Arlington, VA

Google [Advanced Search](#) [Preferences](#)

Web [Show options...](#) Results 1 - 10 of about 6,030 for [fairfax dog doo](#)

Local business results for dog doo near Fairfax, VA



A [Scoop-Dee-Doo Pets - Pooper Scooper & Dog Walking Service - \[www.scoopdeedoopets.com\]\(http://www.scoopdeedoopets.com\)](#)
 8665 Sudley Rd. #304, Manassas - (866) 222-8877
[Directions and more »](#)

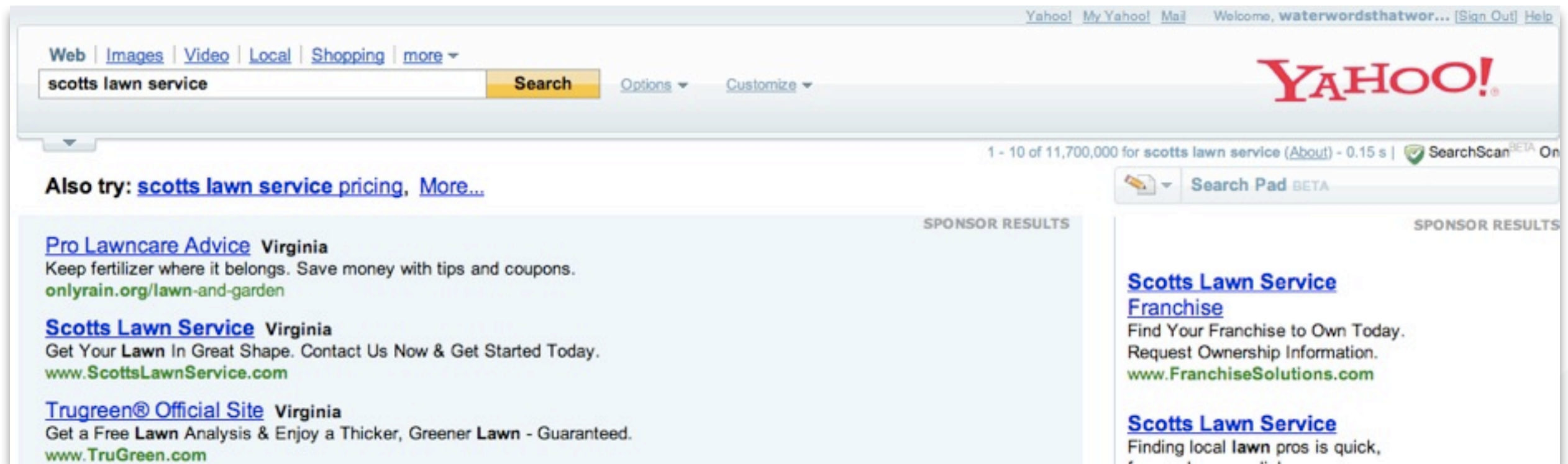
B [Hermitage Apartments - \[www.kayapartments.com\]\(http://www.kayapartments.com\)](#)
 12105 Polo Dr, Fairfax - (703) 352-7368
 ★★☆☆☆ [88 reviews, directions, and more »](#)

[More results near Fairfax, VA »](#)

Sponsored Links

[Responsible Dog Owner?](#)
 Do it right, do it together
 Tips/coupons for NoVa dog owners
onlyrain.org/dog-lovers/
 Fairfax, VA

Yahoo! Ads



The screenshot shows a Yahoo! search results page for the query "scotts lawn service". The page features a navigation bar with links to Web, Images, Video, Local, Shopping, and more. The search bar contains the text "scotts lawn service" and a "Search" button. The results are displayed in two columns. The left column shows organic search results, including "Pro Lawncare Advice Virginia", "Scotts Lawn Service Virginia", and "Trugreen® Official Site Virginia". The right column shows sponsored results, including "Scotts Lawn Service Franchise" and "Scotts Lawn Service". The page also includes a "Search Pad BETA" button and a "SearchScan BETA" button.

Web | Images | Video | Local | Shopping | more ▾

scotts lawn service Search Options ▾ Customize ▾

YAHOO!

1 - 10 of 11,700,000 for scotts lawn service (About) - 0.15 s | SearchScan BETA On

Also try: [scotts lawn service pricing](#), [More...](#)

SPONSOR RESULTS

[Pro Lawncare Advice](#) Virginia
Keep fertilizer where it belongs. Save money with tips and coupons.
[onlyrain.org/lawn-and-garden](#)

[Scotts Lawn Service](#) Virginia
Get Your Lawn In Great Shape. Contact Us Now & Get Started Today.
[www.ScottsLawnService.com](#)





[Trugreen® Official Site](#) Virginia
Get a Free Lawn Analysis & Enjoy a Thicker, Greener Lawn - Guaranteed.
[www.TruGreen.com](#)

SPONSOR RESULTS





[Scotts Lawn Service Franchise](#)
Find Your Franchise to Own Today.
Request Ownership Information.
[www.FranchiseSolutions.com](#)

[Scotts Lawn Service](#)
Finding local lawn pros is quick,

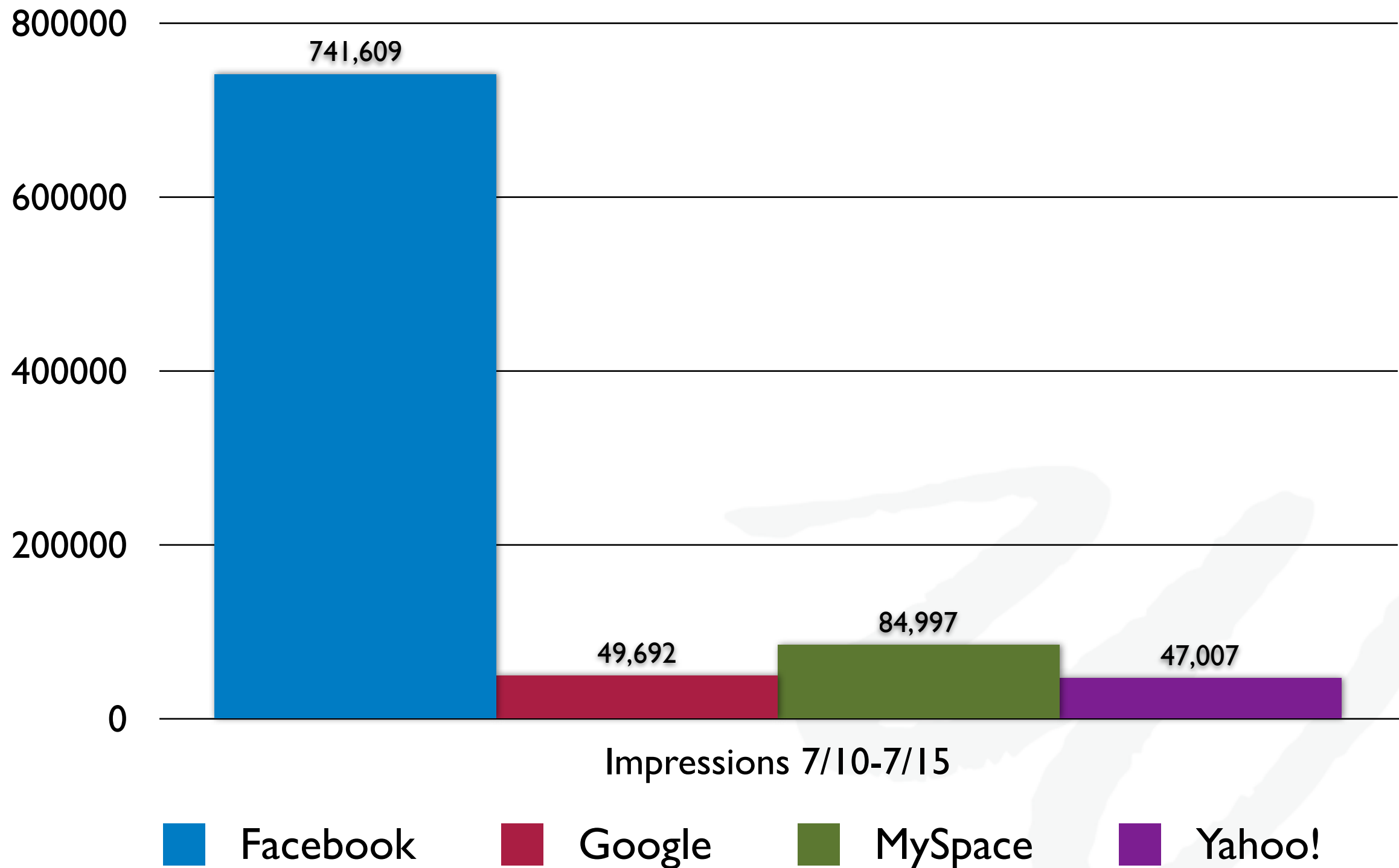
Facebook Targeting

Dogs	Water	Motor Oil	Lawns
<p>Do You Love Your Dog?</p>  <p>Help Fido be a good neighbor. Tips for Virginia dog owners.</p>	<p>Save Your Local Waterways</p>  <p>We offer money-saving coupons for products that reduce pollution.</p>	<p>Change Your Oil Yourself?</p>  <p>Recycle it conveniently in NoVa! Get tips for home auto repair</p>	<p>Pro Lawncare Advice</p>  <p>Keep fertilizer where it belongs. Save money with tips and coupons.</p>
<p>This ad targets users:</p> <ul style="list-style-type: none"> • who live in the United States • who live within 25 miles of Alexandria, VA, Arlington, VA, Fairfax, VA, Falls Church, VA, Fredericksburg, VA, Herndon, VA, Leesburg, VA or Vienna, VA • over the age of 18 • who like dogs, pets or walking my dog 	<p>This ad targets users:</p> <ul style="list-style-type: none"> • who live in the United States • who live within 50 miles of Alexandria, VA, Arlington, VA, Fairfax, VA, Falls Church, VA, Fredericksburg, VA, Herndon, VA, Leesburg, VA or Vienna, VA • over the age of 18 • who like beaches, boating, chesapeake, clean water, conservation, creeks, environmental issues, environmentally friendly, fish, fishing, nature, nature conservancy, pollution, rivers, swimming or water 	<p>This ad targets users:</p> <ul style="list-style-type: none"> • who live in the United States • who live within 25 miles of Alexandria, VA, Arlington, VA, Fairfax, VA, Falls Church, VA, Fredericksburg, VA, Herndon, VA, Leesburg, VA or Vienna, VA • over the age of 18 • who like auto racing, car talk, cars, hot rods, mechanical, mechanical stuff, motorhead, oil gas product or repairing 	<p>This ad targets users:</p> <ul style="list-style-type: none"> • who live in the United States • who live within 25 miles of Alexandria, VA, Arlington, VA, Fairfax, VA, Falls Church, VA, Fredericksburg, VA, Herndon, VA, Leesburg, VA or Vienna, VA • over the age of 18 • who like gardening, grass, lawn care, lawn garden, lawn mowing, peat moss fertilizers, yard, yard work or yards

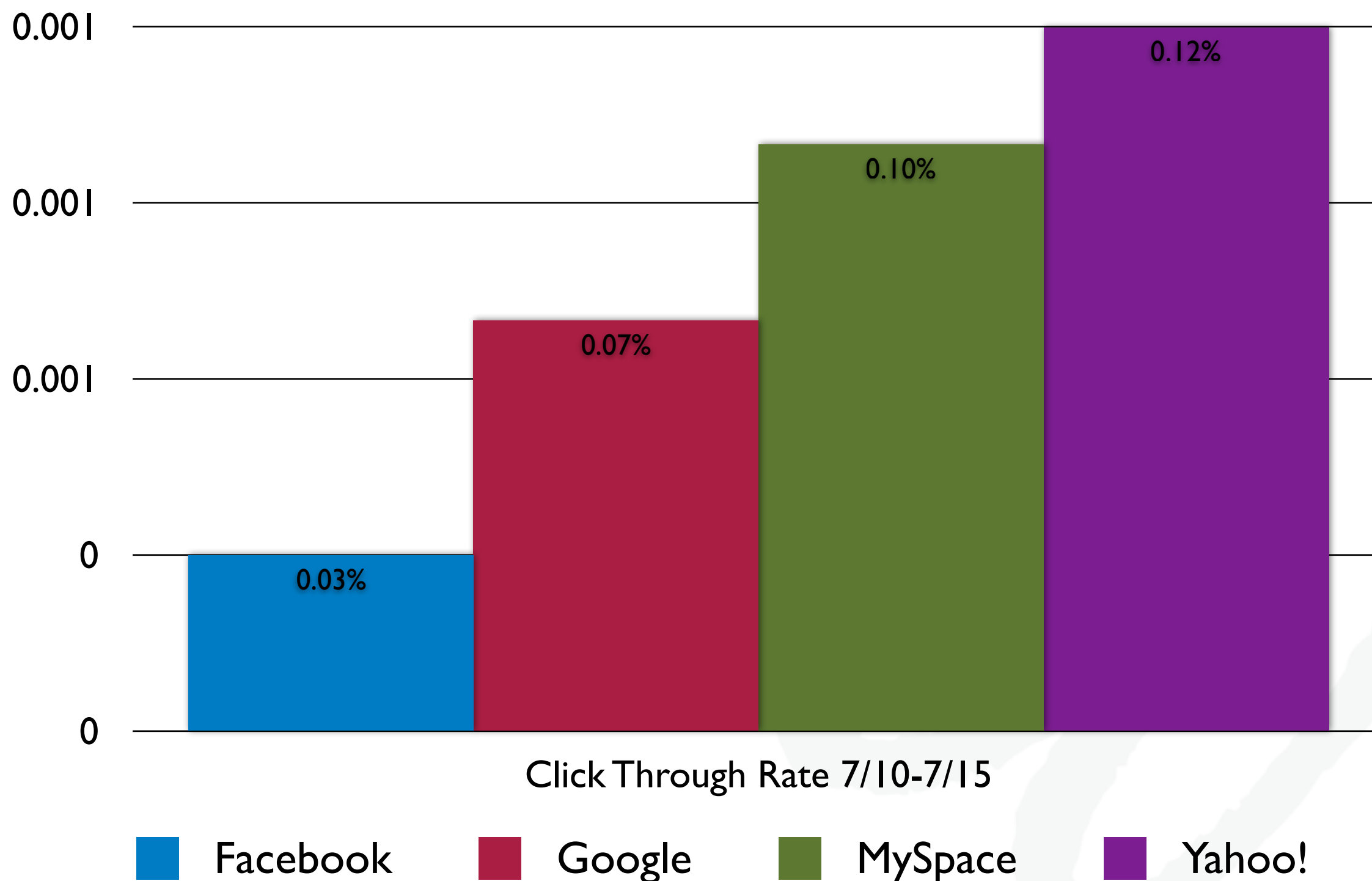
MySpace Targeting

Dogs	Water	Motor Oil	Lawns
 <p>Do You Love Your Dog? Help Fido be a good neighbor. Tips for Virginia dog owners.</p>	 <p>Save Your Local Waterways We offer money-saving coupons for products that reduce pollution.</p>	 <p>Change Your Oil Yourself? Recycle it conveniently in NoVa. Get tips for home auto repair.</p>	 <p>Pro Lawn care Advice Keep fertilizer where it belongs. Save money with tips and coupons.</p>
<p>Target Audience</p> <p>Gender: Males and Females Age: 14 to 65+ Education: All Relationship: All Parental Status: All</p> <p>Geography: State/City - Alexandria, Fairfax, VA; Falls Church, VA; Oakton, VA; Vernon, VA; Oakton, VA</p> <p>Interests and Occupations: Dogs</p>	<p>Target Audience</p> <p>Gender: Males and Females Age: 14 to 65+ Education: All Relationship: All Parental Status: All</p> <p>Geography: State/City - Alexandria, VA; Fairfax, VA; Falls Church, VA; Oakton, VA; Vernon, VA; Oakton, VA</p> <p>Interests and Occupations: Environment & Nature</p>	<p>Target Audience</p> <p>Gender: Males and Females Age: 14 to 65+ Education: All Relationship: All Parental Status: All</p> <p>Geography: State/City - Alexandria, VA; Fairfax, VA; Falls Church, VA; Oakton, VA; Vernon, VA; Oakton, VA; West Mclean, VA; Woodbridge, VA</p> <p>Interests and Occupations: Car tuning</p>	<p>Target Audience</p> <p>Gender: Males and Females Age: 14 to 65+ Education: All Relationship: All Parental Status: All</p> <p>Geography: State/City - Alexandria, VA; Fairfax, VA; Falls Church, VA; Oakton, VA; Vernon, VA; Oakton, VA; Occoquan, VA; Stafford, VA</p> <p>Interests and Occupations: Gardening</p>

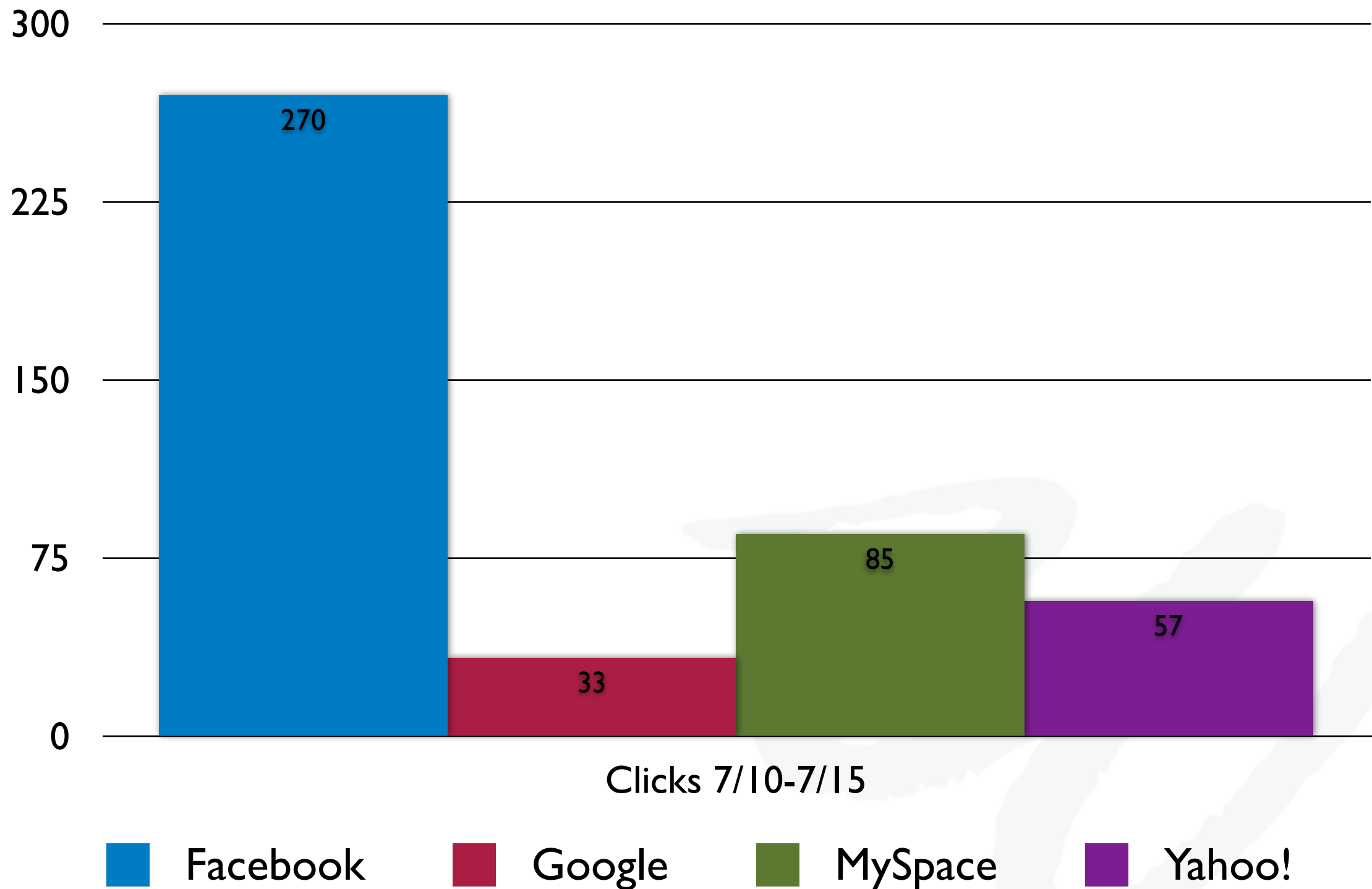
Comparing Channels: Impressions



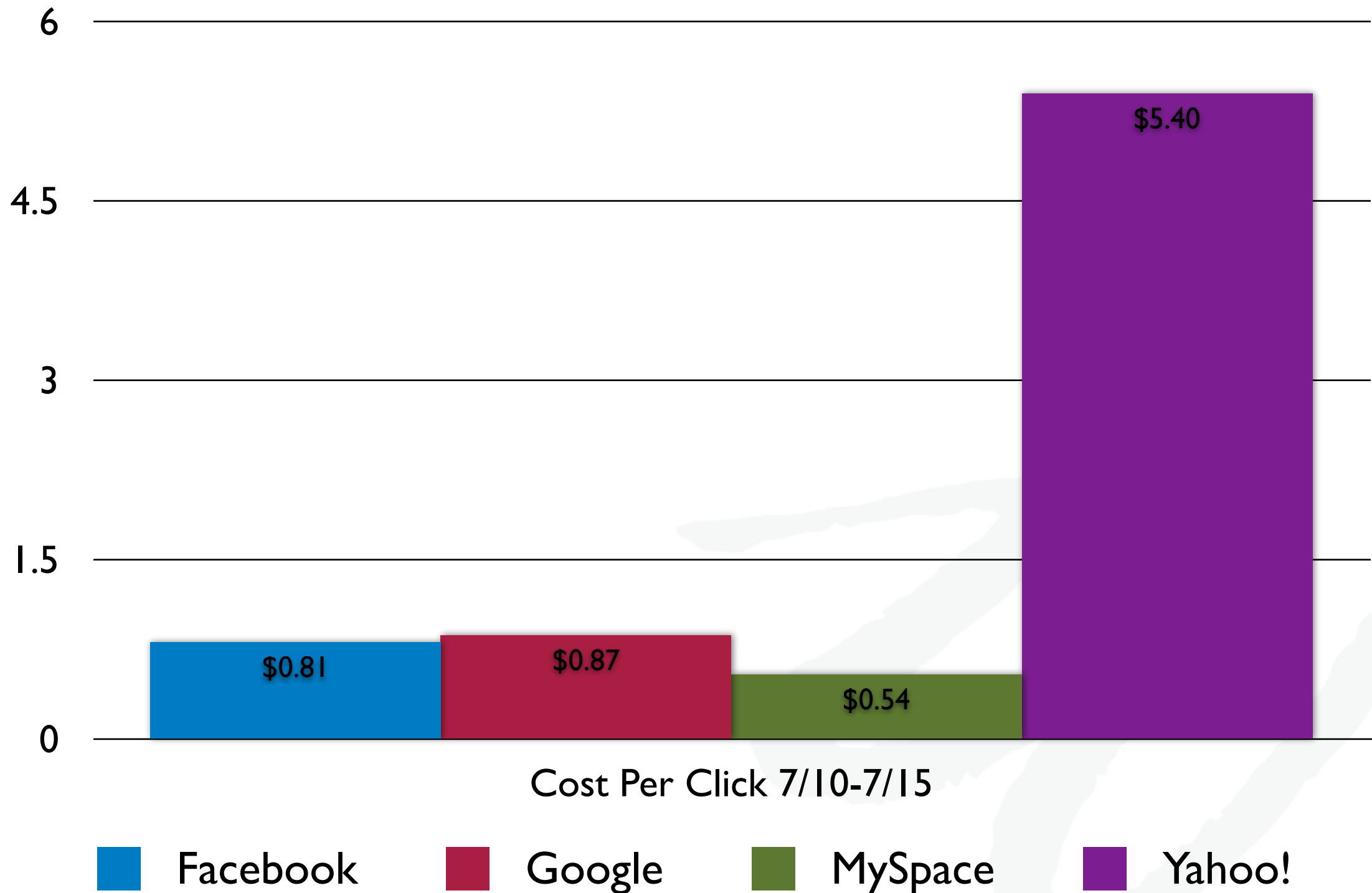
Comparing Channels: Click Through Rate



Comparing Channels: Number of Clicks



Comparing Channels: Cost Per Click

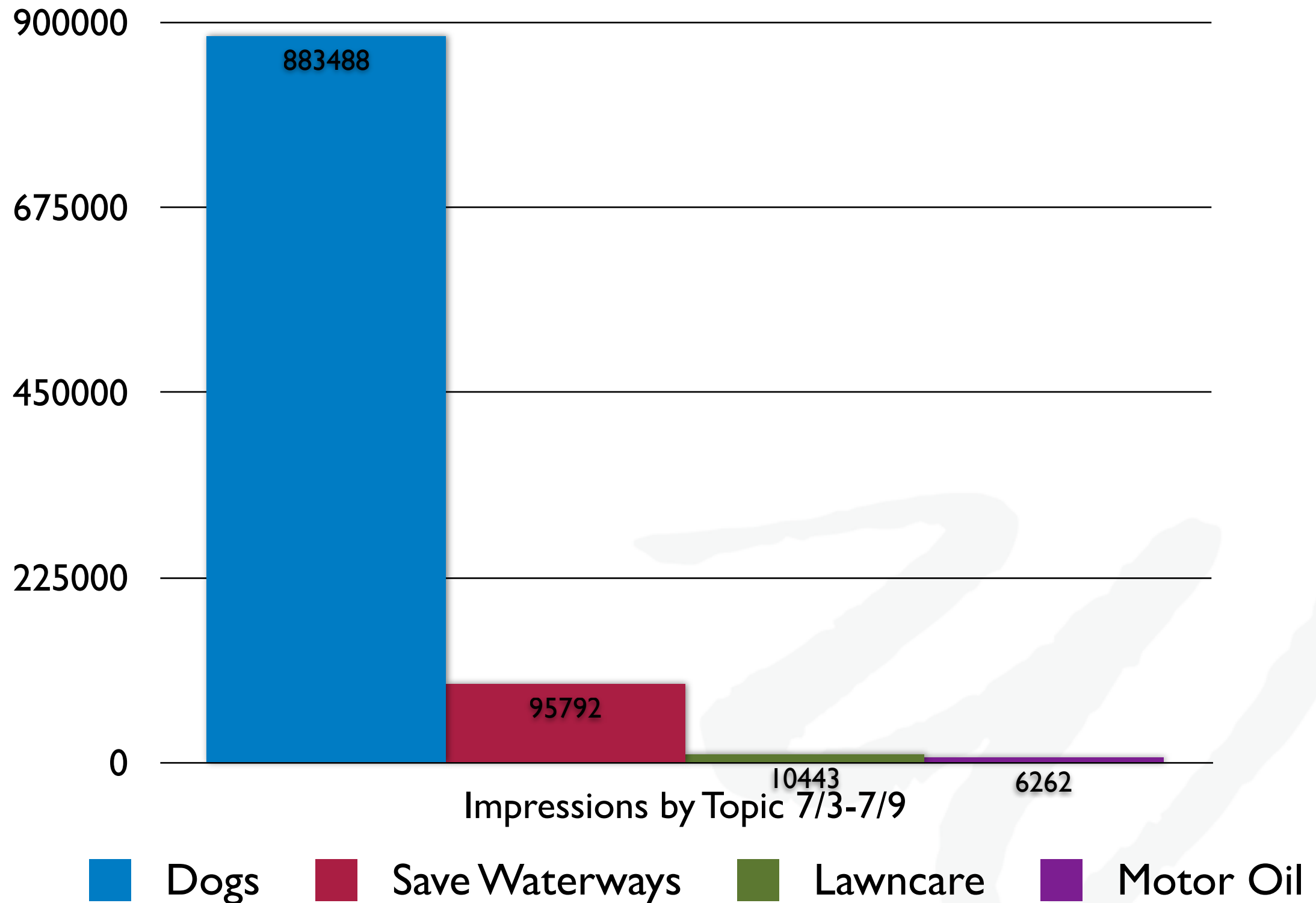


Comparing Topics

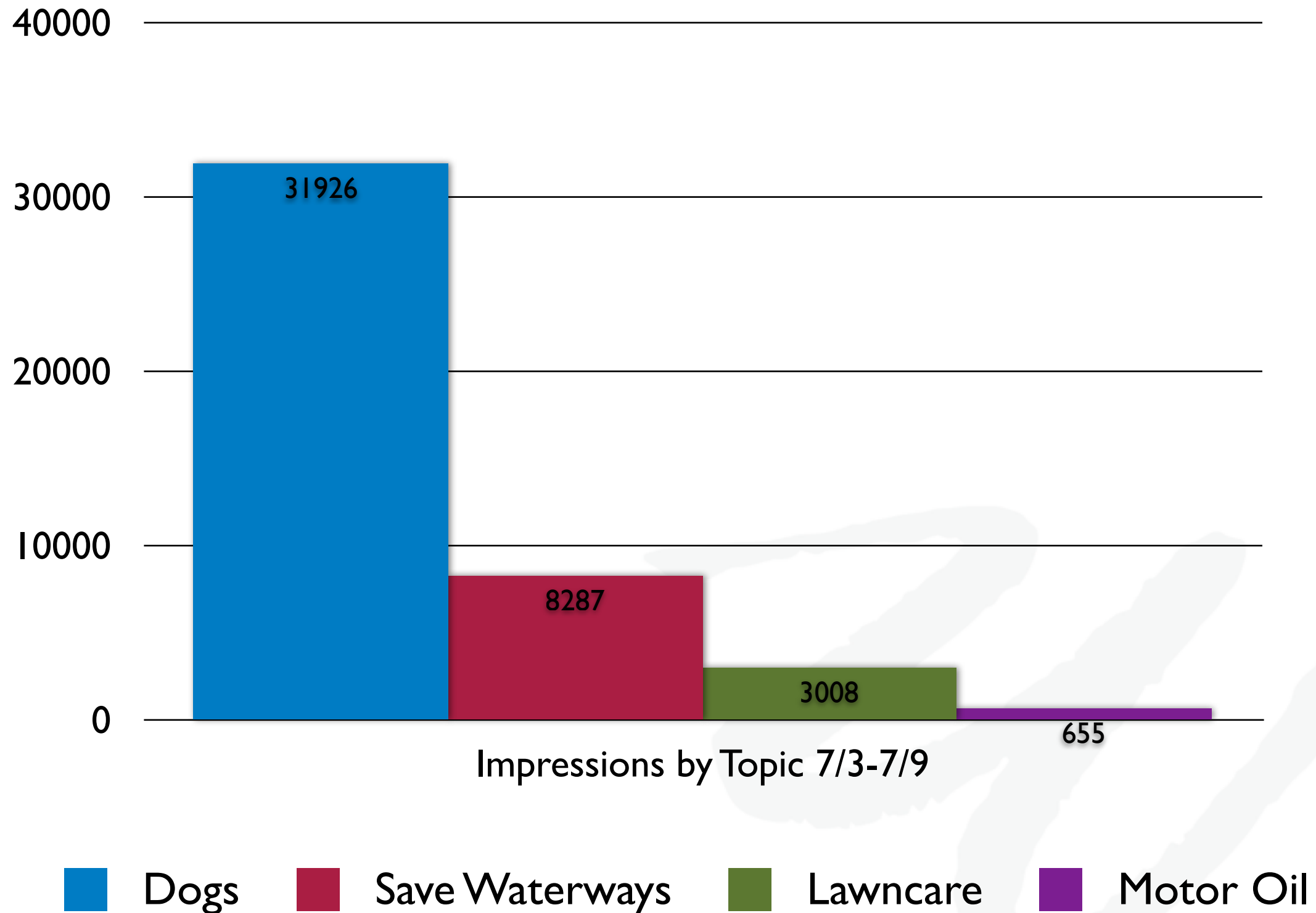
What We've Learned So Far About Topics

- Dogs and clean water ads appear to do well on social networks
- Motor oil and lawn care ads appear to do better on search engines
- We can only speculate why

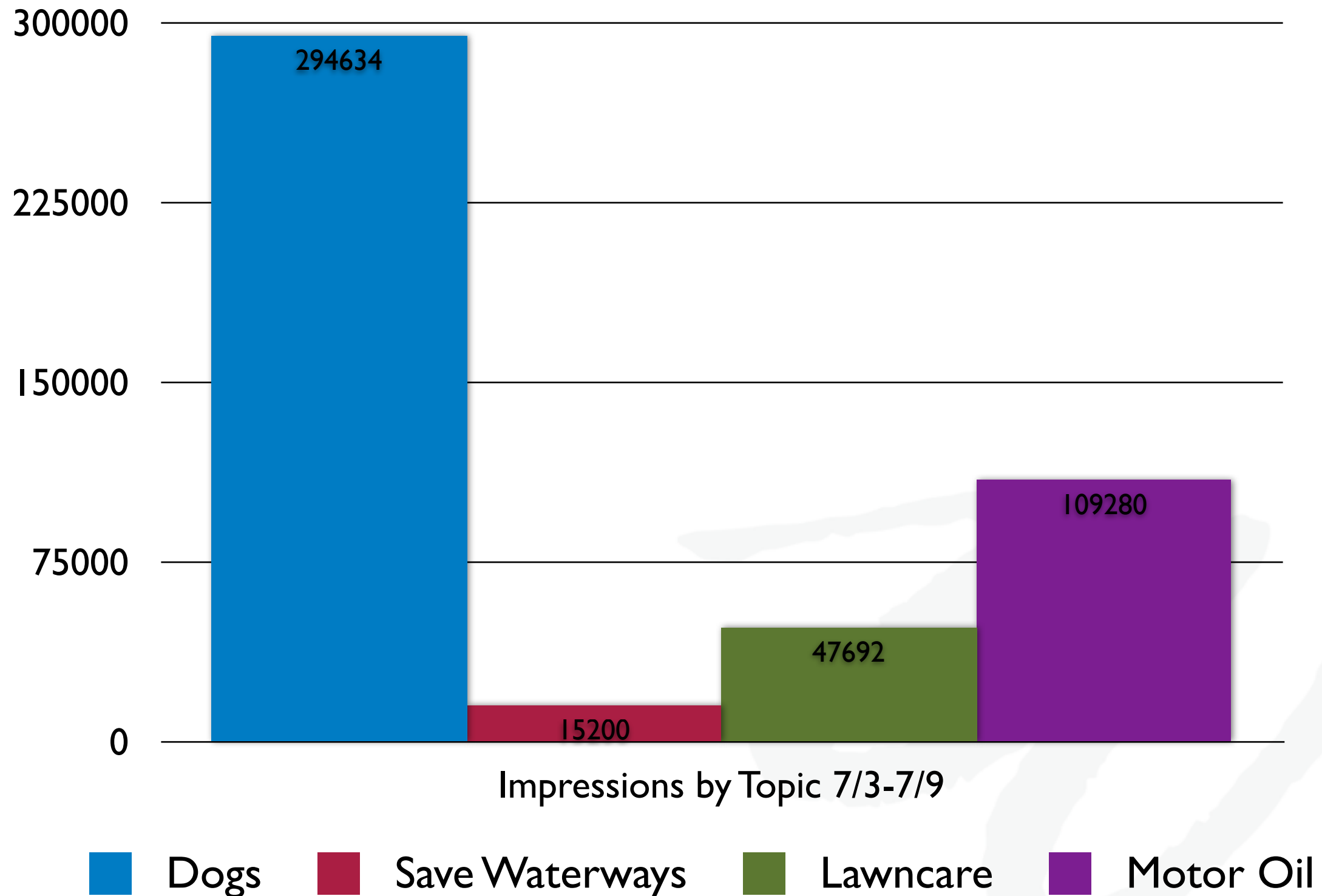
Facebook By Topic



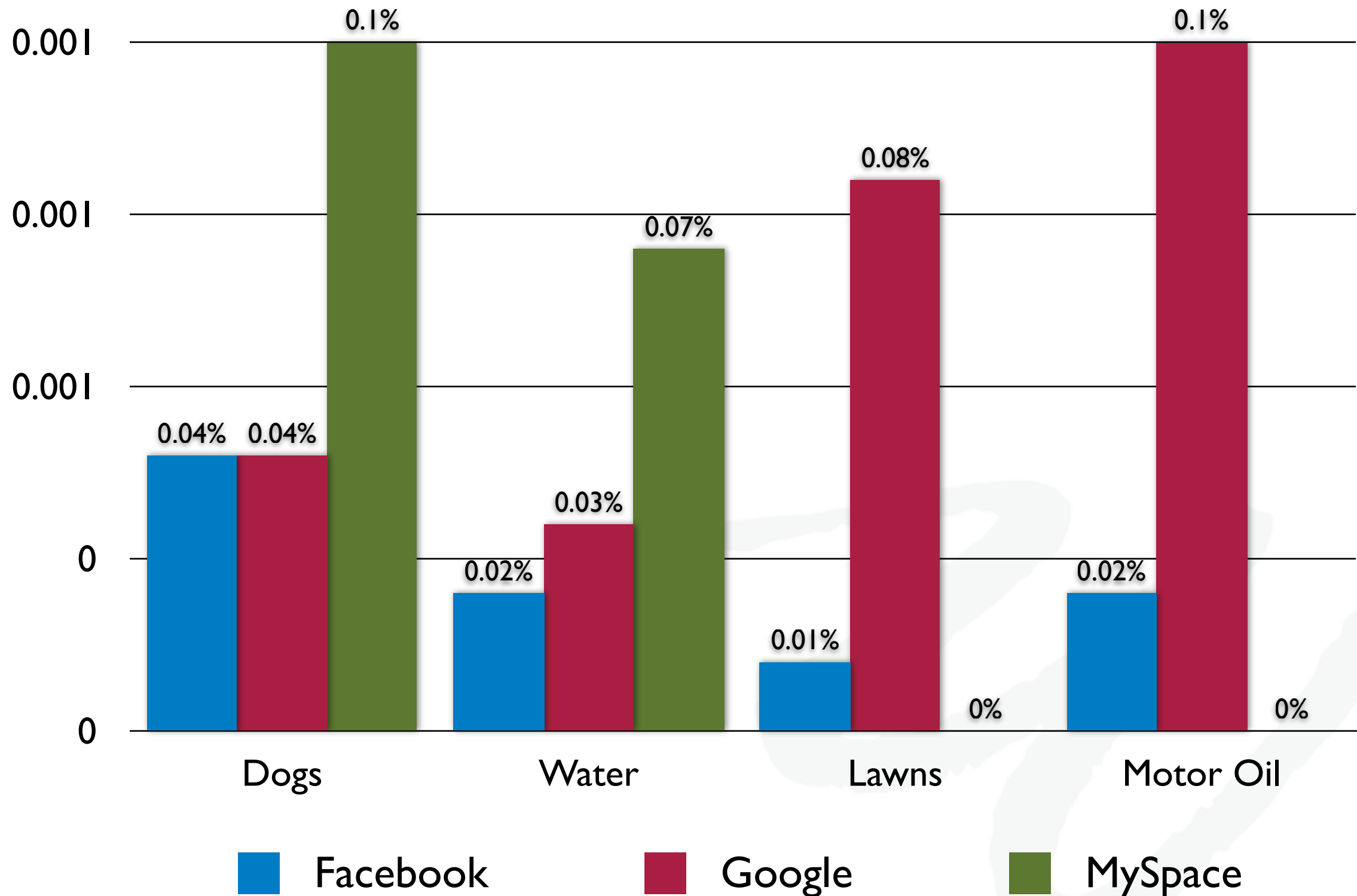
MySpace By Topic



Google By Topic



Click Through: Dogs

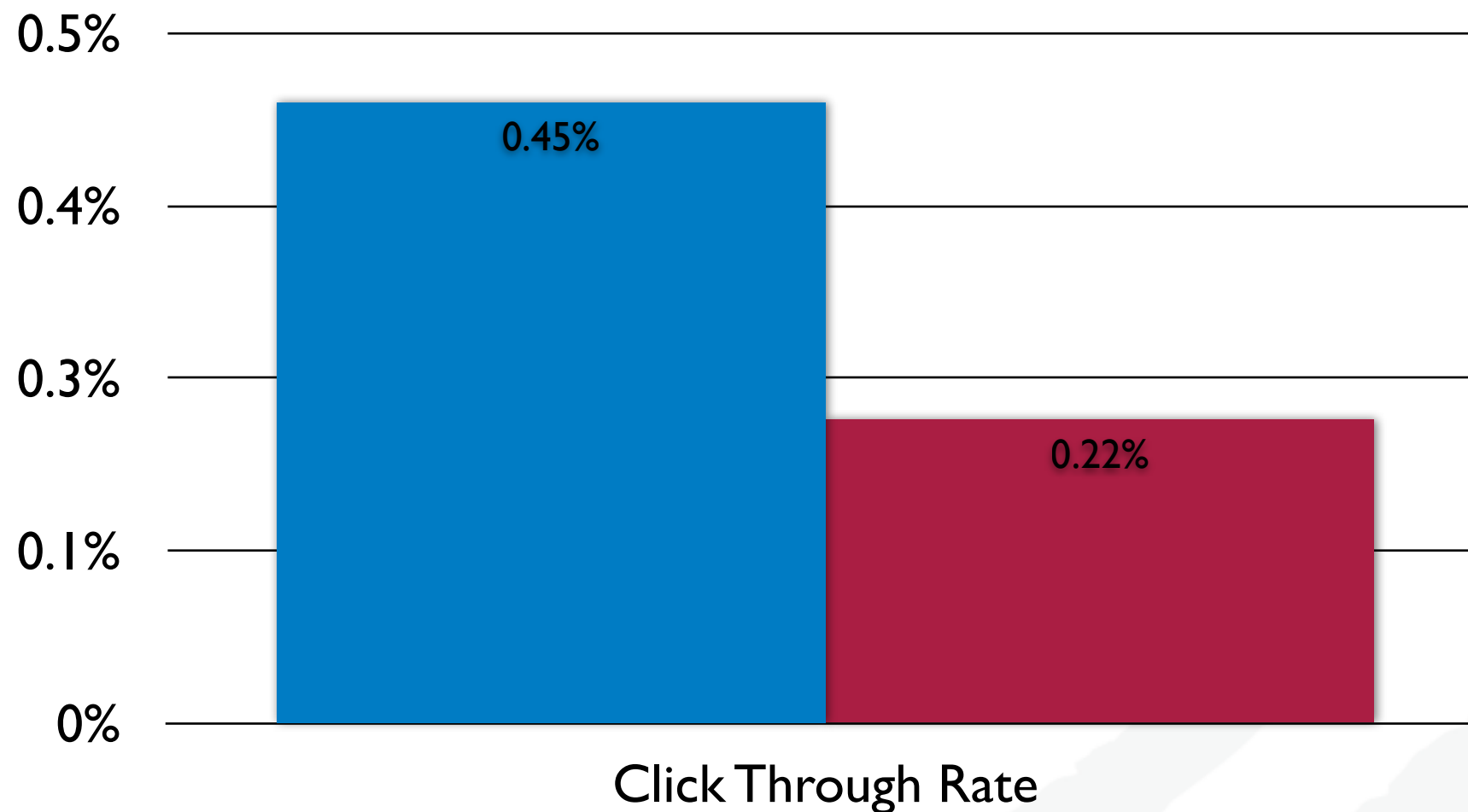


Comparing Ads

What We've Learned So Far About Ads

- Ads that offer tips and coupons *dramatically* outperform ads that don't
- The jury is still out whether “tips” or “coupons” is the better term -- there may be no clear winner here

Comparing Ads



Pro Lawncare Advice

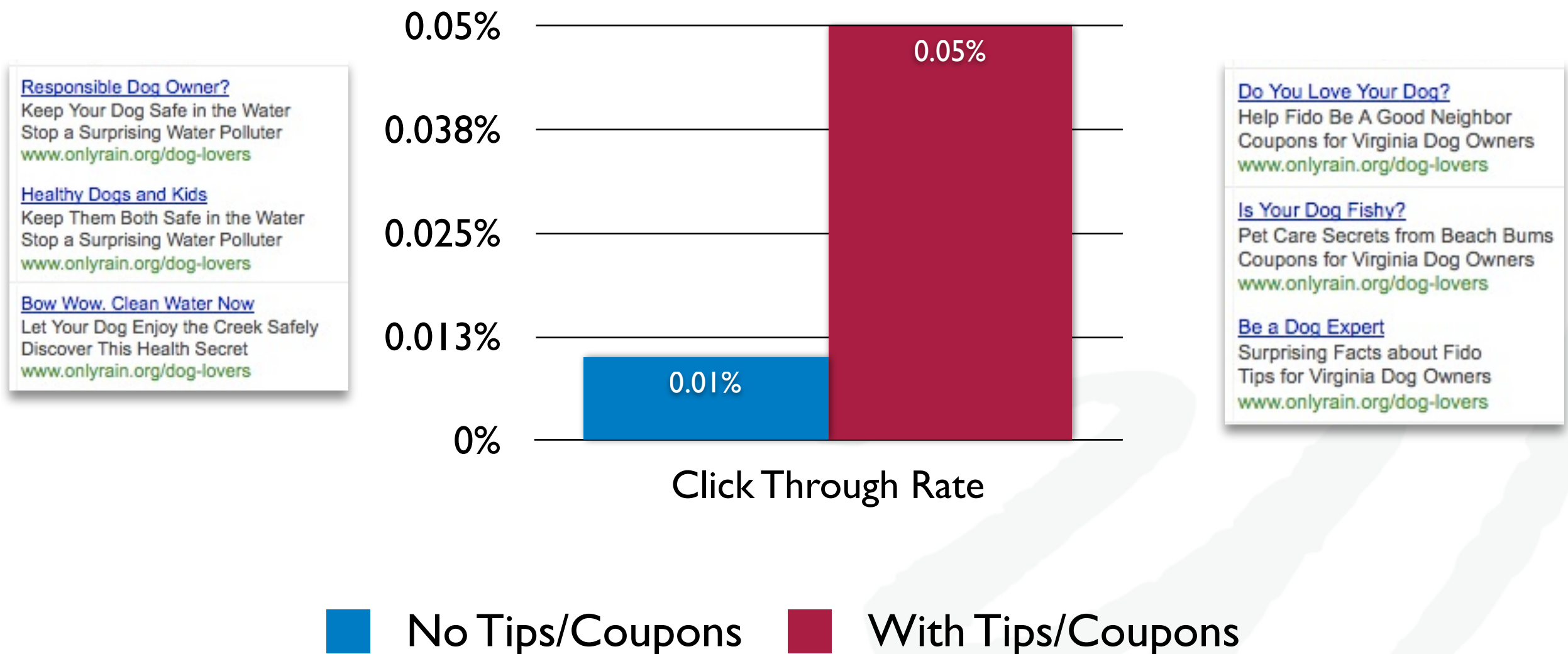
Keep Fertilizer Where it Belongs
Save Money With Tips and Coupons
www.onlyrain.org/lawn-and-garden

Pro Lawncare Advice

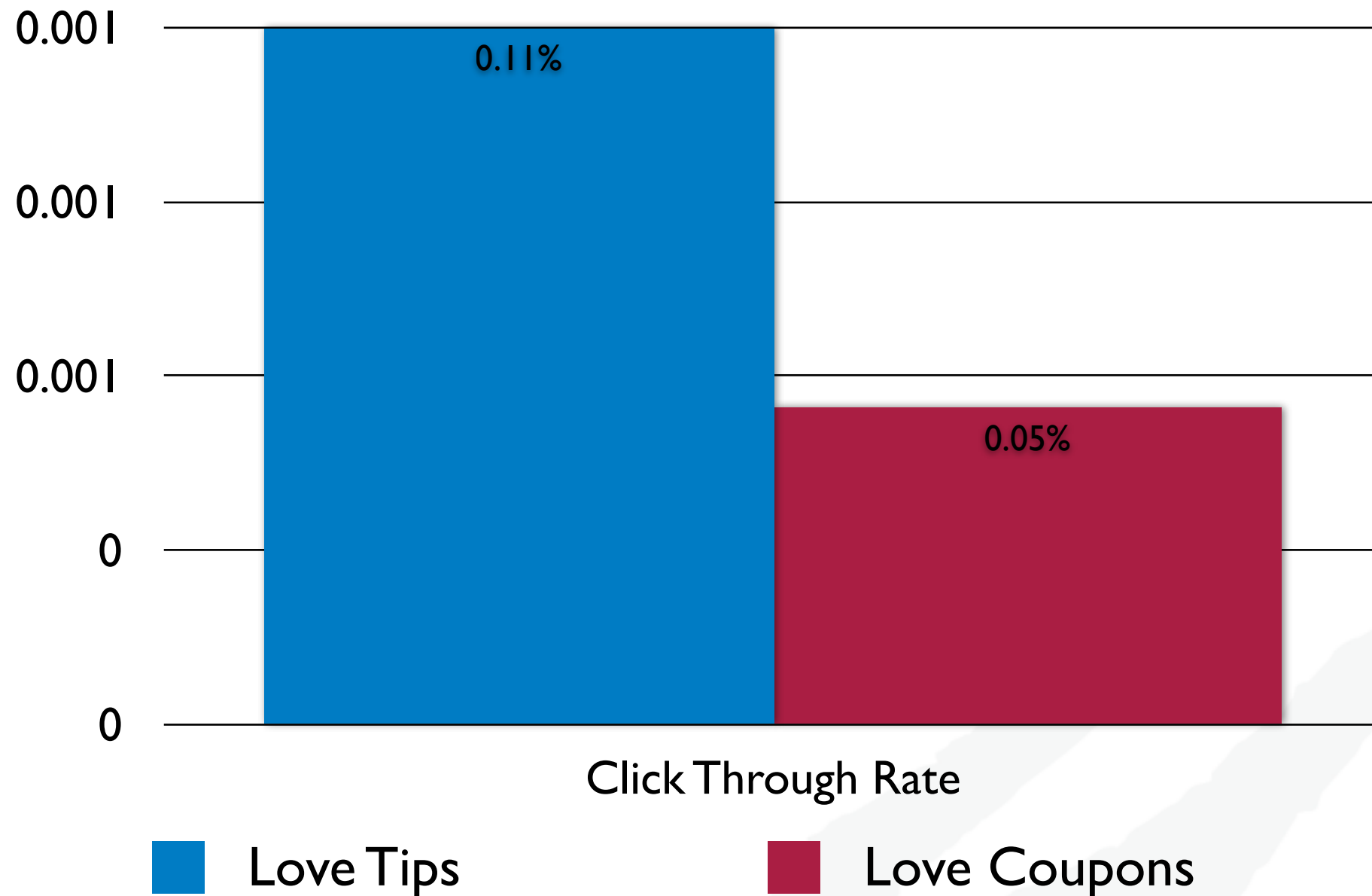
Keep Fertilizer Where it Belongs
Make the Switch to "Green" Lawncare
www.onlyrain.org/lawn-and-garden

6/17 to 6/23

Dog Doo: New and Old



New Dog Doo Ads: Tips vs. Coupons

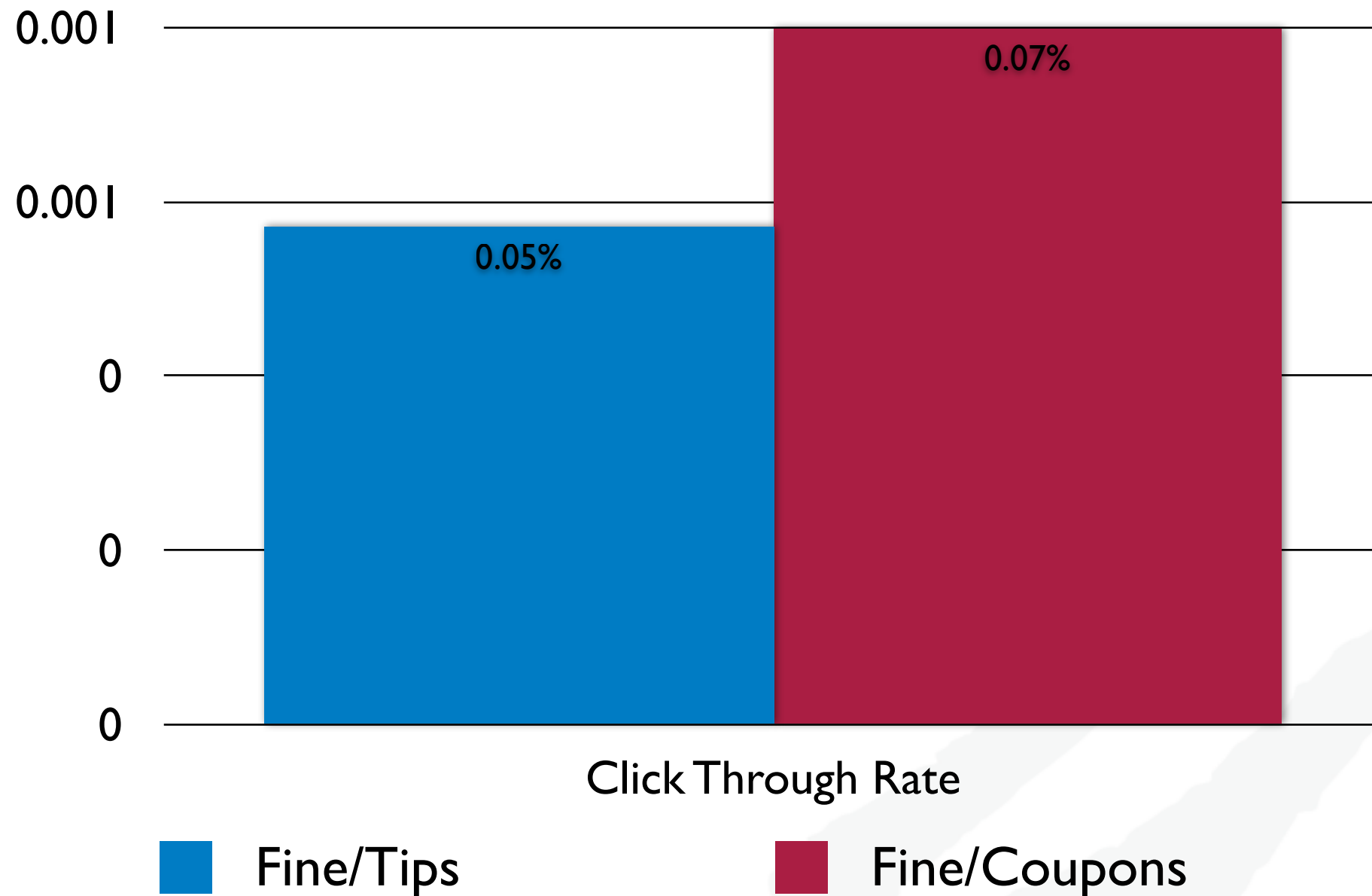


[Do You Love Your Dog?](#)
Help Fido Be A Good Neighbor
Tips for Virginia Dog Owners
www.onlyrain.org/dog-lovers

6/22 to 6/28

[Do You Love Your Dog?](#)
Help Fido Be A Good Neighbor
Coupons for Virginia Dog Owners
www.onlyrain.org/dog-lovers

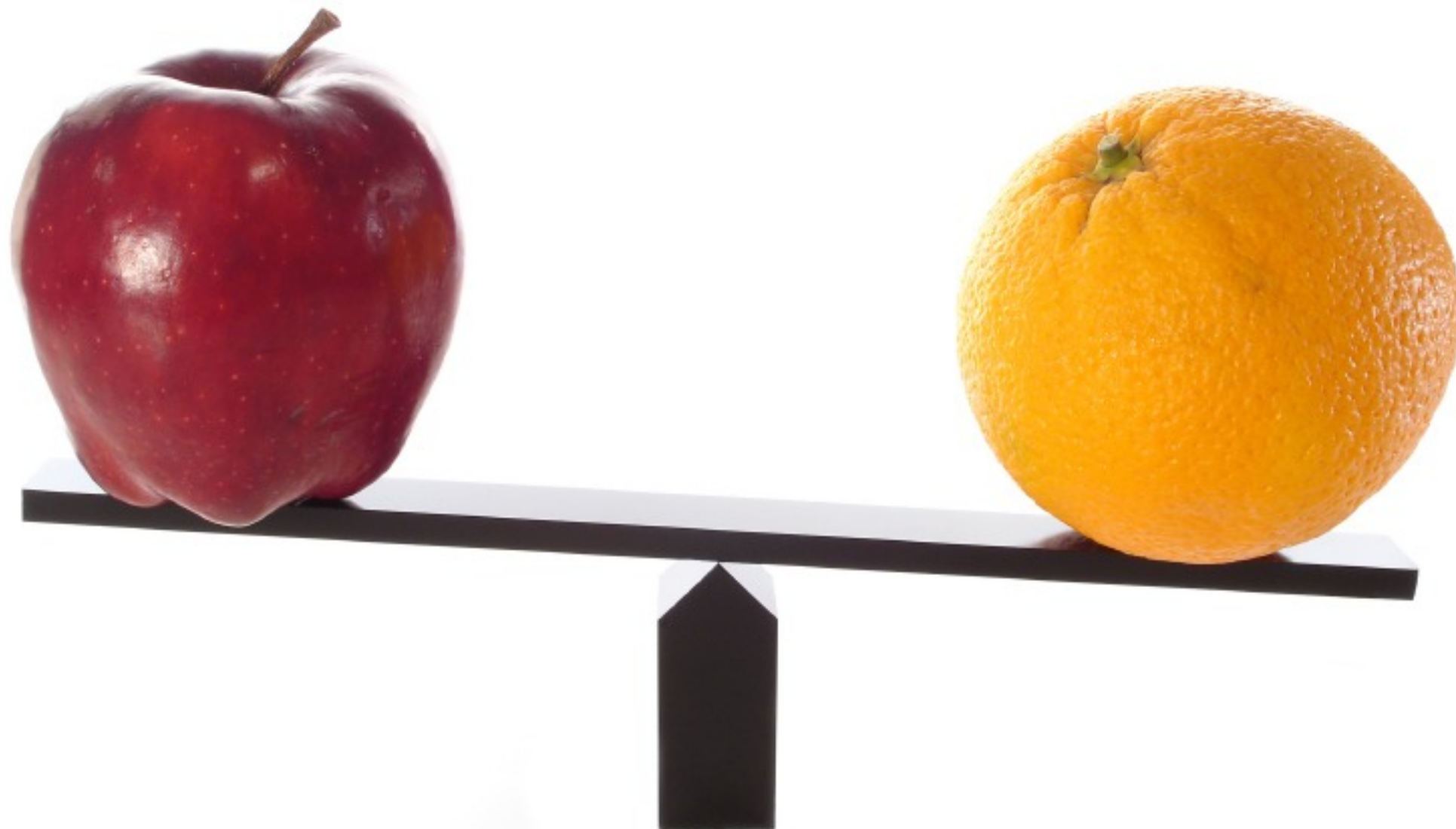
Motor Oil: Tips vs. Coupons



[Change Your Oil Yourself?](#)
One mistake can lead to a big fine
Home Mechanics Get Tips Here
www.OnlyRain.org/home-mechanics

6/22 to 6/28

[Change Your Oil Yourself?](#)
One Mistake Can Lead to A Big Fine
Home Mechanics Get Coupons Here
www.OnlyRain.org/home-mechanics



Worth Noting

- Online advertising is *much* cheaper than radio advertisements - and radio trends are not favorable
- But, online advertising is much *slower* than radio advertising

Radio vs. Online



Do You Love Your Dog?

Help Fido be a good neighbor. Tips for
Virginia dog owners.

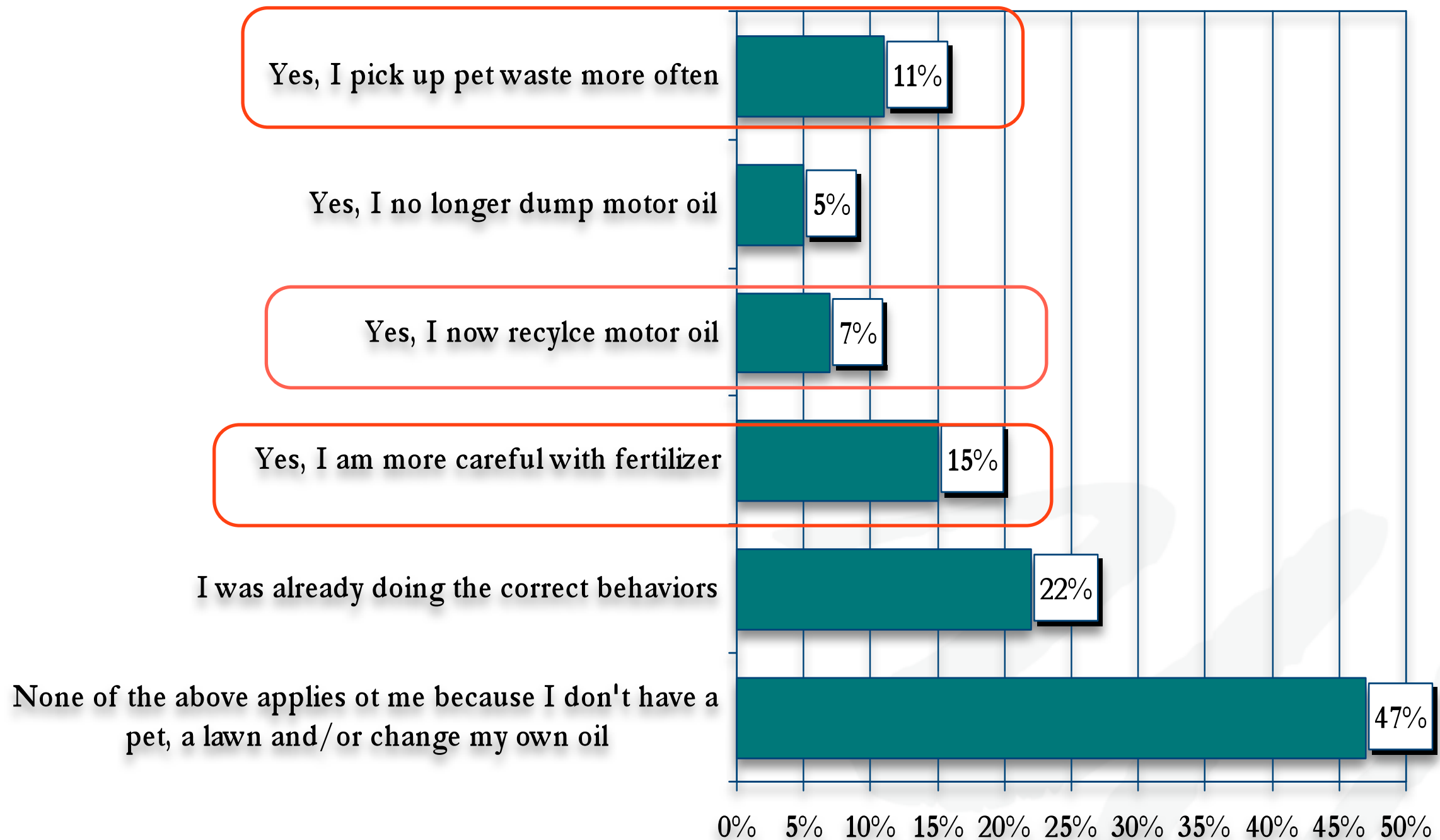
Radio Costs Trending Up

Year	Impressions	Cost	Cost to Reach 1,000
2005	681,458	\$130,900	\$192
2006	1,031,300	\$166,500	\$161
2007	1,008,400	\$168,500	\$167
2008	733,096	\$181,500	\$248
2009	355,446	\$80,000	\$225

\$ Comparisons

	Impressions	Cost	Cost reach 1,000 people
Radio	355,446	\$80,000	\$225.1
Online	2,855,116	\$1209	\$0.42
	Clicks	Cost	Cost Per Click
Radio	692	\$80,000	\$115.6
Online	1,200	\$1,209.69	\$1.01

Last Year's Results



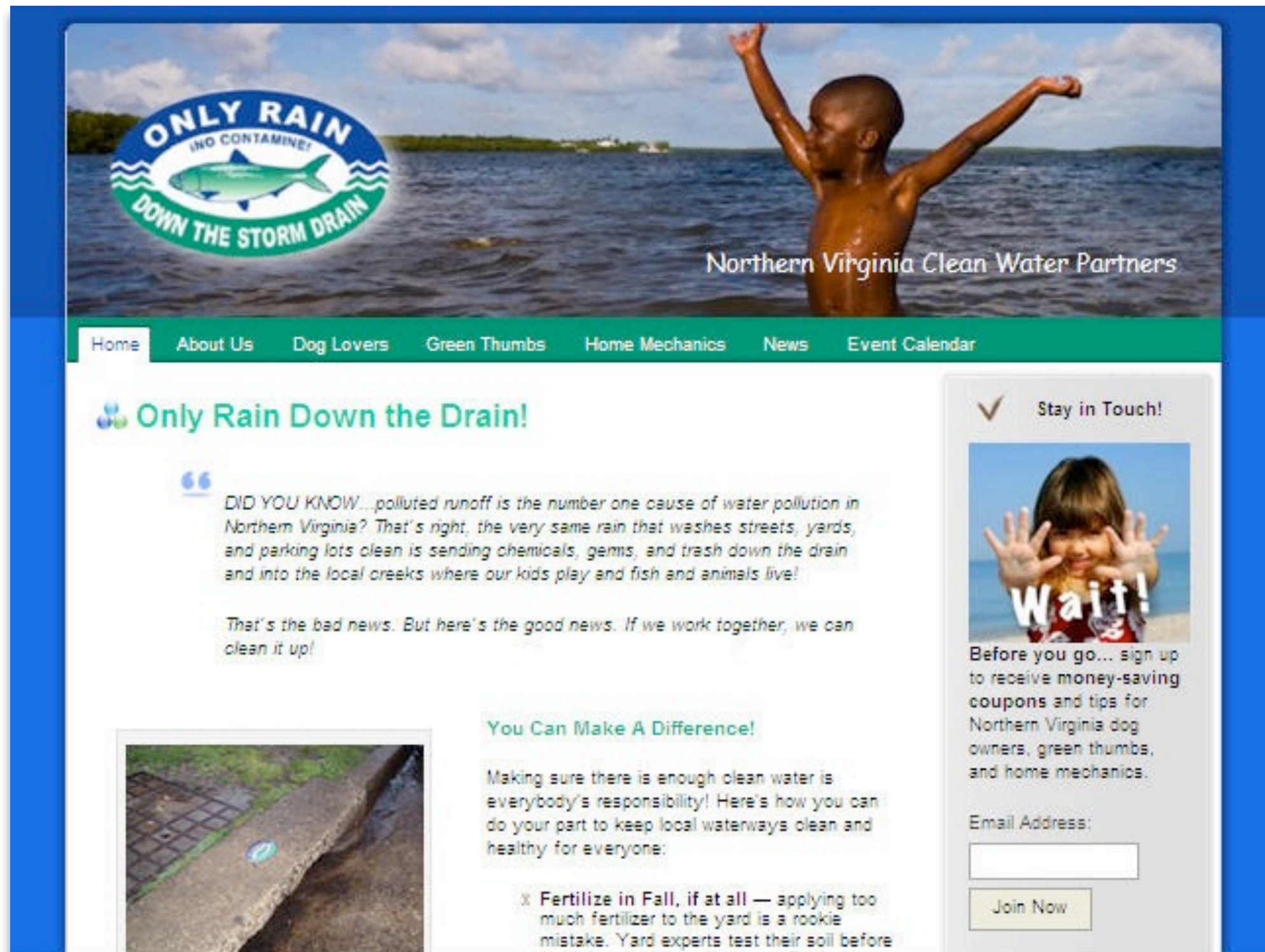
Towards an ROI Calculation

2008			
Cost	Impressions	Remembered %	Remembered #
\$181,500	733,096	48%	351,886

Behavior	Change
Motor Oil %	5%
Motor Oil #	17,594
Cost Per	\$10.32
Lawn Care %	15%
Lawn Care #	52,783
Cost Per	\$3.44
Dog Waste %	11%
Dog Waste #	38,707
Cost Per	\$4.69

Thoughts on a Next Campaign

Tips and Coupons?



ONLY RAIN
NO CONTAMINERS!
DOWN THE STORM DRAIN

Northern Virginia Clean Water Partners

Home About Us Dog Lovers Green Thumbs Home Mechanics News Event Calendar

Only Rain Down the Drain!

“ DID YOU KNOW...polluted runoff is the number one cause of water pollution in Northern Virginia? That's right, the very same rain that washes streets, yards, and parking lots clean is sending chemicals, germs, and trash down the drain and into the local creeks where our kids play and fish and animals live!

That's the bad news. But here's the good news. If we work together, we can clean it up!

You Can Make A Difference!

Making sure there is enough clean water is everybody's responsibility! Here's how you can do your part to keep local waterways clean and healthy for everyone:

- x **Fertilize in Fall, if at all** — applying too much fertilizer to the yard is a rookie mistake. Yard experts test their soil before

Stay in Touch!

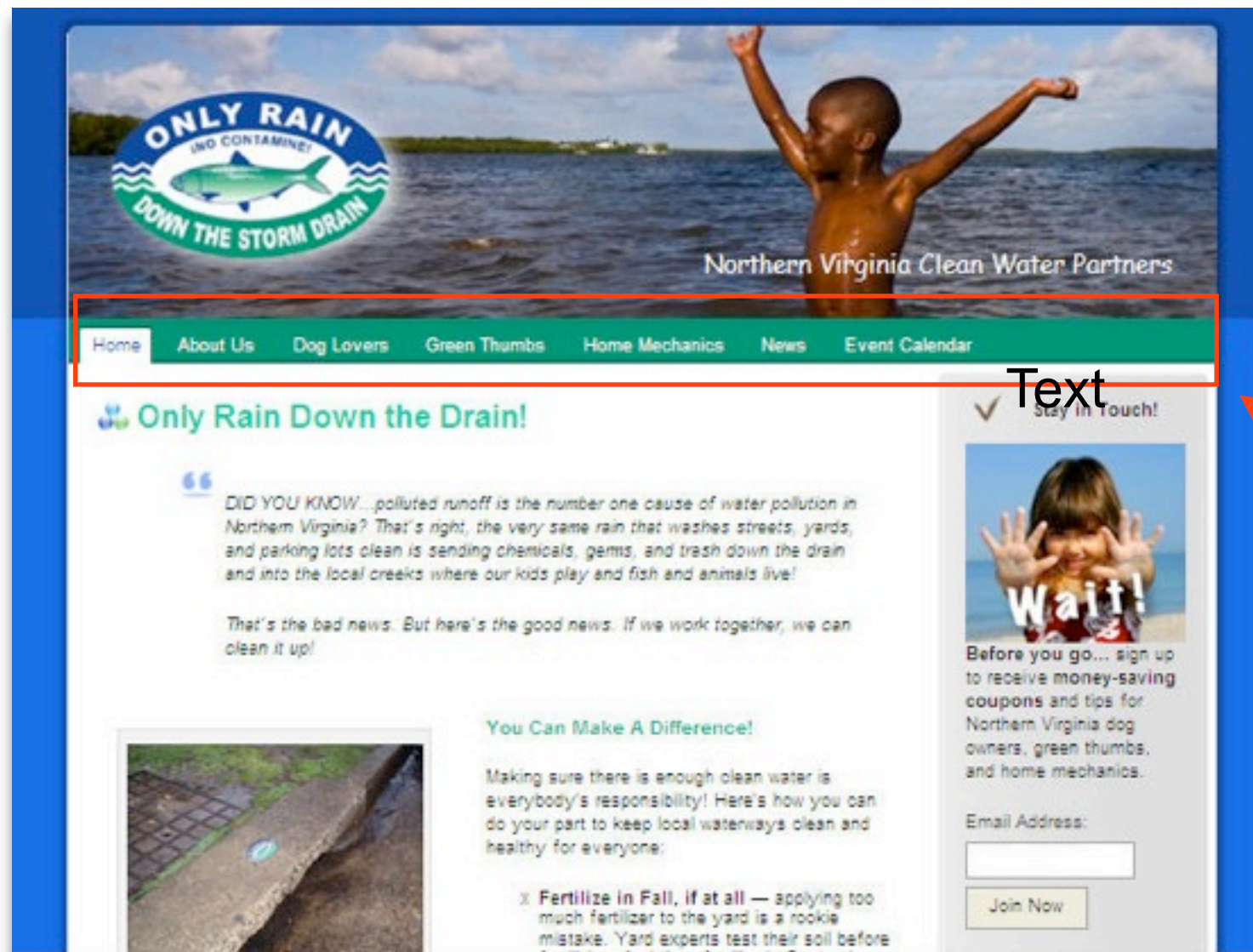
Wait!

Before you go... sign up to receive money-saving coupons and tips for Northern Virginia dog owners, green thumbs, and home mechanics.

Email Address:

[Join Now](#)

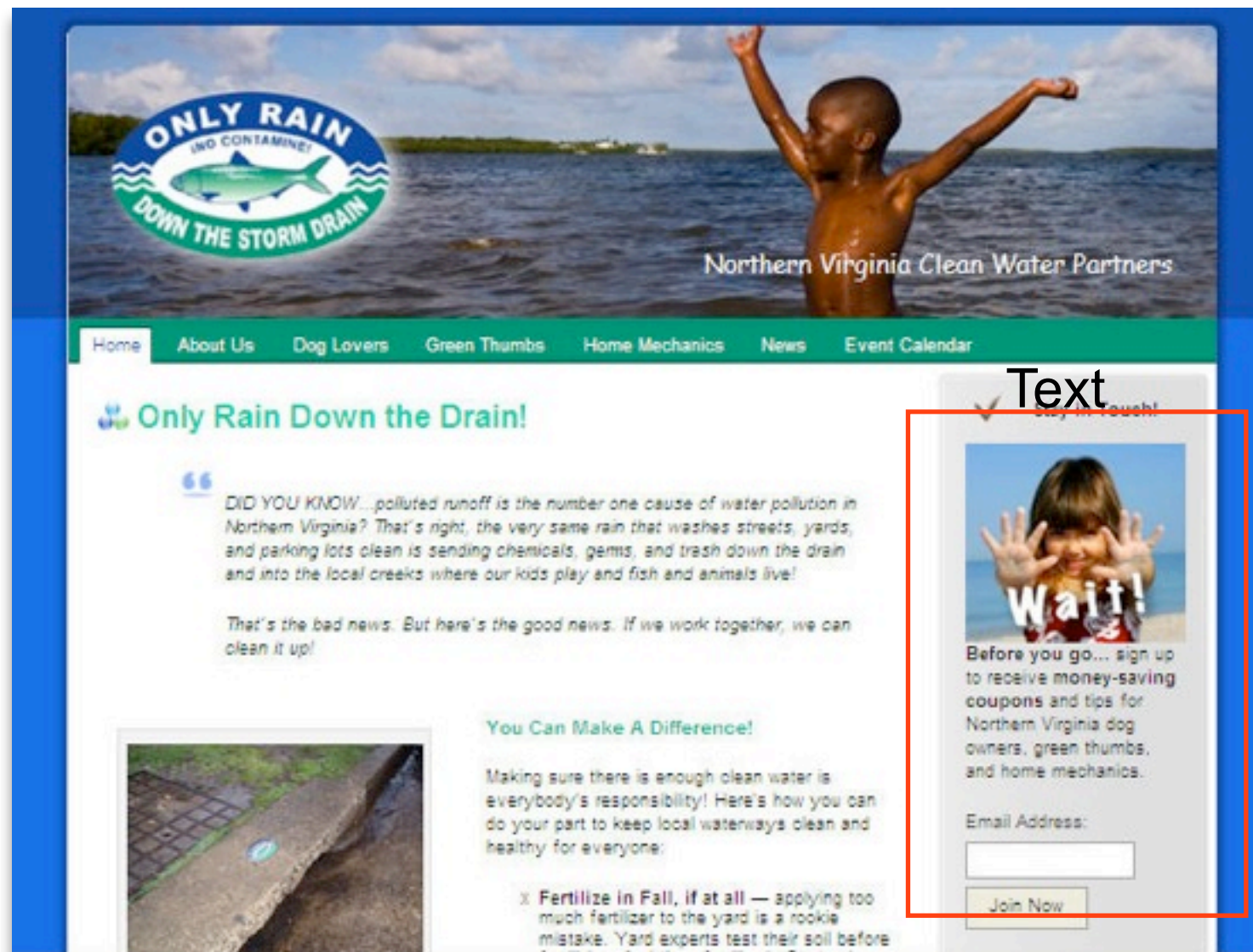
Tips and Coupons?



Text

Carefully review visitor habits throughout the site to see how visitors are using it.

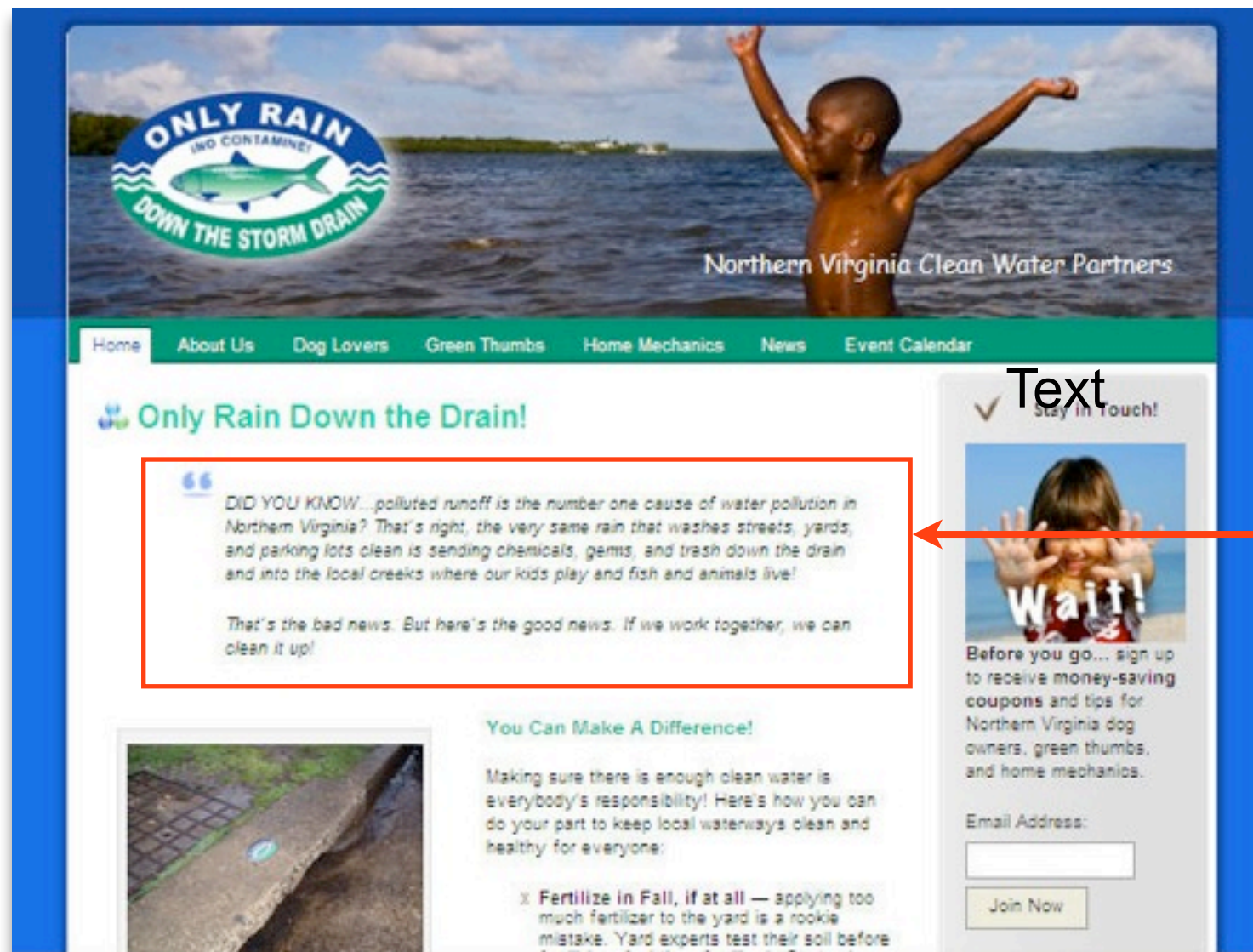
Tips and Coupons?



Text

Test variations of email
signup offer to see if we
can achieve more than
2.5%

Tips and Coupons?



Test variations of copy and pictures on website to see if we can increase average time on site.

Appendix D

Technical Workshop Materials

Integrated Shoreline Management Workshop

Tuesday, February 24, 2009

1 – 4 p.m.

Northern Virginia Regional Commission
Chesapeake Conference Room
3060 Williams Drive, Suite 510
Fairfax, VA, 22031
For directions, visit: www.novaregion.org

This **FREE** half-day workshop, co-sponsored by the Northern Virginia Regional Commission (NVRC) and the Virginia Institute of Marine Science (VIMS), will provide an introduction to the practical application of integrated shoreline management for the local government staff.

Who is invited?

The workshop is open to all local government staff. However, the information presented will be of particular interest to:

- Wetlands Board staff
- Chesapeake Bay Board staff
- Virginia Marine Resources Commission – Habitat Management staff
- DCR – Chesapeake Bay Local Assistance staff

What is integrated shoreline management?

According to VIMS, integrated shoreline management considers all parts of the shoreline system, is based on sustaining ecosystem services, recognizes unavoidable impact tradeoffs, provides project design guidance, and addresses cumulative impacts.

What information will be presented?

Scientists from the Center for Coastal Resources Management of VIMS will lead the workshop on the following topics:

- Jurisdiction determination
- Tidal wetland delineation
- Pre-application strategies
- Permit processing and evaluation
- Ecosystem services
- Determination of erosion risk and indicators
- Determination of preferred shoreline treatments and their impacts

RSVP:

Please RSVP to Julie Bradshaw at VIMS (julieb@vims.edu or 804-684-7894).

Additional Information:

Light snacks, coffee, and water will be provided.



NVRC's participation in this workshop is funded in part by the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA08NOS4190466 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.



Integrated Shoreline Management Workshop

Northern Virginia Regional Commission

Tuesday, February 24, 2009

Please Sign-In!

Name	Organization	Please make any corrections to your email address
John Friedman	Fairfax County	John.friedman@fairfaxcounty.gov
Claudia Hamblin-Katnik	City of Alexandria	claudia.hamblin-katnik@alexandriava.gov
Jeff Harn	Arlington County	jharn@arlingtonva.us
Noel Kaplan	Fairfax County	noel.kaplan@fairfaxcounty.gov
Jennifer Bonnette	Fairfax County	Jennifer.bonnette@fairfaxcounty.gov
Patty Dietz	Prince William County	pdietz@pwcgov.org
Claudia Cruise	Town of Occoquan	ccruise@occoquan.org
Tom Dombrowski	Prince William County	tdombrowski@pwcgov.org
Clay Morris	Prince William County	Jmorris2@pwcgov.org
Matt Williams	The Engineering Groupe / Occoquan	mwilliams@encgroup.com
Julie Bradshaw	Virginia Institute of Marine Sciences	julieb@vims.edu
Laura Grape	NVRC	lgrape@novaregion.org
Sam Ference	NVRC	sference@novaregion.org

Beautifying Your Yard for Healthy Streams

Designing, Building, and Maintaining Small-Scale Rain Gardens

*Brought to you by:
Arlington County Department of Environmental Services*

Saturday, February 28, 2008
9:30 - 12:30 a.m.
Fairlington Community Center

AGENDA

Welcome

Designing and Building a Rain Garden

Asad Rouhi, Urban Conservation Engineer, Northern Virginia Soil & Water Conservation District

Break

Selecting Plants and Landscaping a Rain Garden

Christin Jolicoeur, Watershed Specialist, Northern Virginia Soil & Water Conservation District

Break

Maintaining a Rain Garden, Lessons-Learned

Aileen Winquist, Environmental Planner, Arlington County

Questions



This workshop was funded, in part, by Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NAO6NOS4190178 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.



PRESENTERS

Asad Rouhi, PhD, P.E., Urban Conservation Engineer - asad.rouhi@fairfaxcounty.gov
Christin Jolicoeur, Watershed Specialist - christin.jolicoeur@fairfaxcounty.gov
Northern Virginia Soil and Water Conservation District
www.fairfaxcounty.gov/nvswcd

The Northern Virginia Soil and Water Conservation District is a political subdivision of the Commonwealth of Virginia. Its boundaries are the same as those of Fairfax County. The agency goal is to promote clean streams and protected natural resources. Therefore, the district's mission is to lessen the impact of urban/suburban activities on our land and water resources in Fairfax County—vital components of the Chesapeake Bay Watershed. This is achieved through effective leadership, technical assistance, and outreach programs in collaboration with government, industry, and the public.

Aileen Winquist, Environmental Planner - awinquist@arlingtonva.us
Arlington County Department of Environmental Services
www.arlingtonva.us

Reduce. Reuse. Recycle. Arlington helps protect and conserve our natural resources through recycling programs, environmental outreach, and encouraging environmentally-sound development. Arlington's watershed management program is restoring local streams and improving water quality in the Potomac River and Chesapeake Bay.

Laura Grape, Senior Environmental Planner - lgrape@novaregion.org
Northern Virginia Regional Commission
www.novaregion.org

The Northern Virginia Regional Commission (NVRC) is a regional council of local governments in Northern Virginia. NVRC serves as a neutral forum where representatives of the member local governments can discuss and decide how to approach problems that cross county, city and town boundaries. It helps member governments share information about common problems; recognize opportunities to save money or to be more effective by working together; and take account of regional influences in planning and implementing public policies and services at the local level.

PARTICIPANTS

Name	Email
Adam Vaya Gallegas	
Alex Baralt	
Beth Romero	famromerova@hotmail.com
Brian and Ellen Egan	ellenegan@comcast.net
Christine Freidel	varleyfreidel4@verizon.net
Cory Giacobbe	mahjongcory@yahoo.com
Doug Brown	dojabrown@hotmail.com
Elizabeth Appel	appel_elizabeth@yahoo.com
Elizabeth Walter	elizabethw@smdi.com
Elizabeth Wyrick	
Gail Shirley	gail_shirley@aol.com
Hillary Horn	hhheadstrong@gmail.com
Jen Johnson	jenniferjohnson229@msn.com
Jennifer Palembas	jenniferpalembas@hotmail.com
Jill Barker	crosswell2630@verizon.net
John Mayeux	greenbuilding.jm44@gmail.com
John Ralston	
Karla Hagan	Hepcats@comcast.net
Kate VanSlyck	kvanslyck1@verizon.net
Kay Miller	kmille14@hotmail.com
Lindsay Gallagher	lisxyz@aol.com
Liz Allmuth	
Lorenzo Johnson	Ljspeed@yahoo.com
Lynn Koch	lynnmkoch@comcast.net
Maureen Quinn	mquinn808@comcast.net
Michele Thieme	mthieme@boo.net
Nancy Blevens	Nancykb@erols.com
Pam Leonard	pamleonard@hughes.net
Sara and Ray Anderson	rayandsara@aol.com
Stephanie	
Stefanie Pryor	sepryor@sprynet.com
Alicia Korol	alikor23@gmail.com
Miguel Aguilo	
Sarah Strickler	sa.strickler@verizon.net
Amy Duncan	aduncan22310@yahoo.com
Robert High	rhigh44@yahoo.com
Gary Putnam	putnam.gary@gmail.com
Helen D'Amours	hedamours@aol.com
Kate VanSlyck	kvanslyck1@verizon.net

BEAUTIFYING YOUR YARD FOR HEALTHY STREAMS

A Workshop to Design, Build, and Maintain Small-Scale Rain Gardens

EVALUATION FORM RESPONSES

Total number of responses – 17

1. How would you rate today's seminar

Excellent (15)
Good (2)
Fair
Poor
No Response

Comments: NONE

2. Which session(s) was most informative and useful?*

a. Designing and Building a Rain Garden (6)
b. Selecting Plants and Landscaping a Rain Garden (2)
c. Maintaining a Rain Garden, Lessons Learned (1)
All (6)
No response (2)

Comments:

- All were very good!
 - I knew more about b & c
 - They were all very useful & informative. I'd hate to have to choose one!
 - All worked well together.
- They were all important components. The maintaining presentation could be incorporated into the others.

3. Which session was least informative and useful?*

a. Designing and Building a Rain Garden (2)
b. Selecting Plants and Landscaping a Rain Garden (3)
c. Maintaining a Rain Garden, Lessons Learned (1)
No response (11)

Comments:

- Only by a hair!
 - B & c are less than the first, but all 3 are very good.
 - All were great!
- They were all useful!
 - B – I knew most about this
 - A – a little technical, but useful

**One respondent stated b and c*

4. Please describe how today's seminar could be improved.

- Begin with common user issues first RE: all the ways to cool, clean, slow run-off, then give technical info on rain gardens and other solutions, including green roofs.
- Maybe upfront mention that we didn't need to take copious notes.
- All three subjects were very well presented
- Show more GOOD examples during maintenance section
- Seems like some people got here & realized they did not have property where a rain garden would be practical. Maybe post some of these parameters in advance.
- Repeat questions that may not be loud enough for all to hear.
- Coffee
- Cut down first section [designing/building]
- More attendance! More practical examples from regular people.
- More examples of actual homeowner rain gardens – go see one together
- Great workshop, very informative!
- Can't think of anything. It was a good location & good facility, very comfortable. The renovations to bldg are really nice.
- For website – places where we can see different rain gardens.

- Thought it was excellent – maybe intro to stormwater issues / Chesapeake Bay?!
- Provide better understanding of the purpose, function, & definition of a rain garden, upfront

5. What other environmental-related topics would you like workshops for?

- Green roof, home installation
- Erosion control
- Dealing with soil compaction
- How to do native planting on a budget
- County resources for gardening – mulch delivery, free mulch pick up dirt & inert material drop off; master gardeners – a 1 day or ½ day expo – if you don't know it exists, then you don't know how to look for it.
- Native plants for local residences
- Energy conservation
- Organic gardening
- Green building
- Solar hot water
- Rain barrels
- Landscaping
- Pervious driveways and other things that residents can do.
- Rain barrels
- Rain garden/enviro friendly home & garden tour; edible landscapes
- Cisterns
- Invasive removal

6. Other Comments?

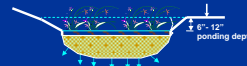
- Thank you!
- Wonderful!
- Thank you! Had no idea about rain gardens, so definitely changed my knowledge level!
- Good seminar – links are important and are very much appreciated! Thanks!
- Thanks! This was great.
- Thank you
- Really good
- Thanks ☺
- I appreciated the obvious personal experience of the presenters. And the local experience.
- I love Arlington County and the work that Aileen does. Thank you so much!
- Thank you!
- Asad was wonderful! Very informative and knowledgeable.
- Asad Rouhi was FANTASTIC. Knowledgeable, practical, good presenter. Christin Jolicouer did a great job too. Very helpful! Aileen Winquist – another great job. Good, practical info.
- Thank you so much!

Rain Garden

*A better way to control
surface water runoff
in your yard*

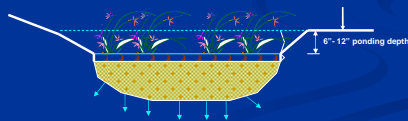


Definition:
*A landscaped depression
that has the ability to
capture, temporary
retain, and treat surface
water runoff*



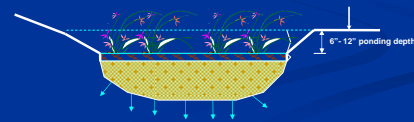
Benefits

*Improves runoff water
quality*



Benefits

*Recharges groundwater
Decreases runoff volume*



Benefits

*Improves surface
drainage, and reduces surface
erosion and flooding potentials*



Benefits

*Acts as a healthy habitat
for plants and birds,*



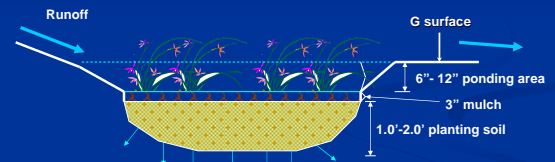
Benefits

*Could be beautiful
and fun to build!*



How Rain Gardens Work

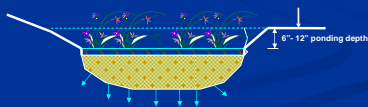
A typical backyard rain garden



How Rain Gardens Work

The main components of a rain garden:

- Inflow
- Outflow
- Ponding area
- Amended soil



How Rain Gardens Work

- Inflow
- Outflow



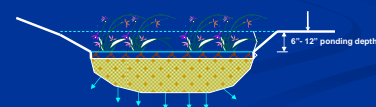
How Rain Gardens Work

- Inflow
- Outflow



How Rain Gardens Work

- Ponding Area



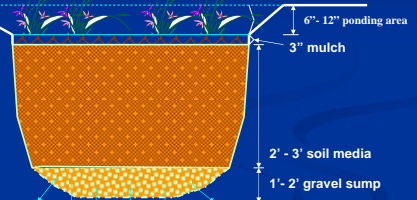
How Rain Gardens Work

Amended soil

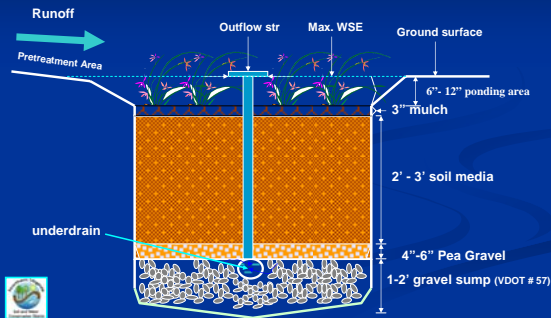


How Rain Gardens Work

Runoff



How Rain Gardens Work



How to design a rain garden

Choose the right location

- Close to the source of runoff
- At least 10.0' from building foundations
- Where there is no underground utilities
- Where there are no easements
- Where ground is not steep
- Not under big trees
- Not over the septic system
- Not where there is standing water
- Where there is suitable soil



How to design a rain garden

Close to the source
But not this close!



How to design a rain garden

Suitable soil

Rain garden is
an infiltration
facility

Find out whether

The soil is suitable
for building a rain
garden



How to design a rain garden

How to find out whether soil is suitable for a rain garden

Start with the County's soil maps



Soil Number	Soil Name	Problem Soil	Foundation Support	Drainage Potential	Septic Drainfield	Infiltration Trenches	Erosion Potential
55	Glenelg	C	Good	Good	Good	Good	High
21	Manor	C	Good	Good	Good	Good	High
20	Meadowville	B	Fair	Marg.	Poor	Poor	Mod.



For Soil Information:

<http://www.fairfaxcounty.gov/gisapps/pdfviewer/default.htm>

<http://soildatamart.nrcs.usda.gov/Manuscripts/VA013/0/Arlington.pdf>

or

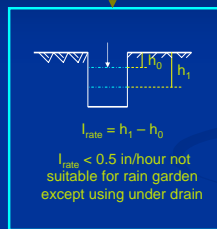
Northern Virginia Soil & Water Conservation District
Suite 905, Herrity Building
12055 Government Center Parkway
Phone: 703-324 1460

or

<http://websoilsurvey.nrcs.usda.gov/app/>



You can measure the infiltration capacity of the soil yourself



How to design a rain garden

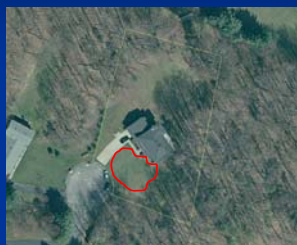
Basic Rules

- Limit the size of your rain garden to between 100 to 300 sf.
- Maximum area that drains into a single rain garden (DA) should not exceed 0.5 acres (on residential lots)



How to design a rain garden

Example



Problem: erosion, drainage

Source of runoff: roof, driveway (impervious), grassed slope (pervious)



How to design a rain garden

Step 1:

Determine the location for the rain garden and delineate the area that will drain into the rain garden



How to design a rain garden

Step 2:

Delineate and calculate the pervious and impervious areas within the area that will drain into the rain garden



- Impervious areas: roofs, paved roads, paved sidewalks, patio...
- Pervious areas: any other surface cover

Impervious: 850 sf (roof) + 550 sf (driveway) + 100 sf (sidewalk) = 1500 sf
Pervious: 4500 sf (lawn)



How to design a rain garden

Step 3

Calculate the rain garden's surface area

Surface area (impervious) = Impervious drainage area x 0.072 x ponding depth factor
Surface area (pervious) = Pervious drainage area x 0.028 x ponding depth factor

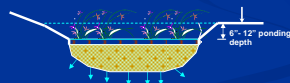
Total rain garden surface area = impervious + pervious surface area



How to design a rain garden

Table 1: Ponding depth factor

	Ponding depth		
	6.0"	9.0"	12.0"
Depth factor	2.0	1.3	1.0



How to design a rain garden

Step three:

Calculate the rain garden's surface area

Surface area (impervious) = Impervious drainage area x 0.072 x ponding depth factor
Surface area (pervious) = Pervious drainage area x 0.028 x ponding depth factor

Ponding depth = 9.0"

Ponding depth factor (from Table 1) = 1.3

Surface area (impervious) = 1500 x 0.072 x 1.3 = 140 sf

Surface area (pervious) = 4500 x 0.028 x 1.3 = 164 sf

Final rain garden's surface area = 140 + 164 = 304 or 300 sf



How to design a rain garden

Runoff volume (cf) = drainage area x 0.08 x runoff value "C"

"C"

Impervious surfaces = 0.9

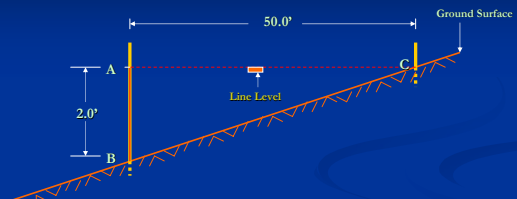
Pervious surfaces = 0.35

Runoff vol. (cf) = impervious drainage area x 0.08 x 0.9 = $DA_{imp.} \times 0.072$
Runoff vol. (cf) = impervious drainage area x 0.08 x 0.35 = $DA_{per.} \times 0.028$



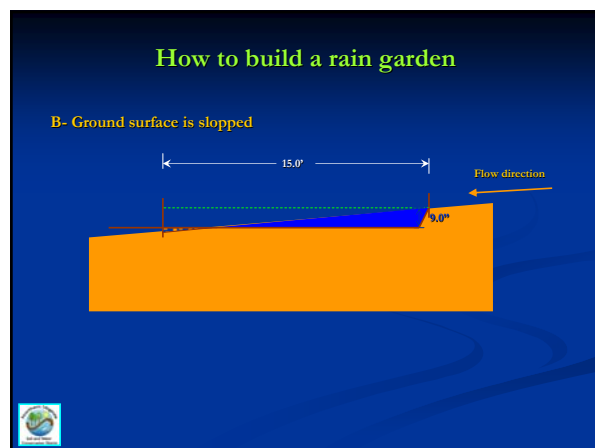
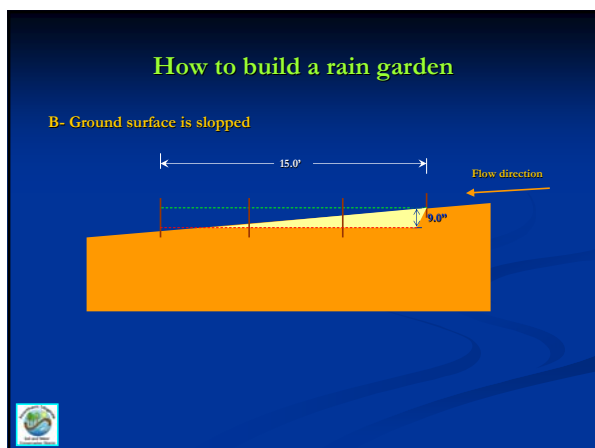
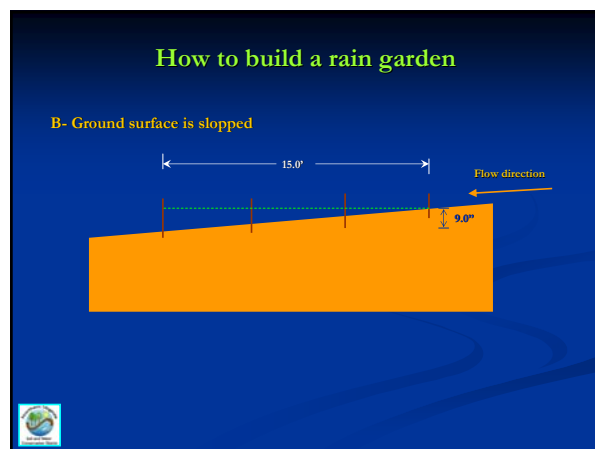
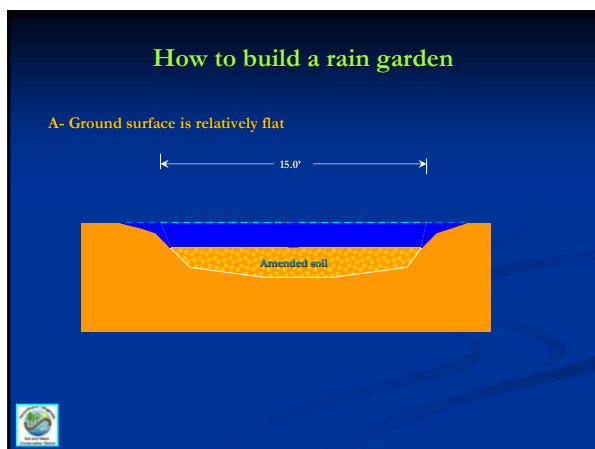
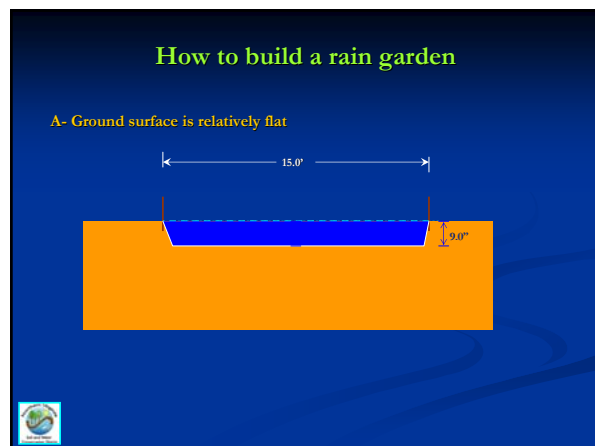
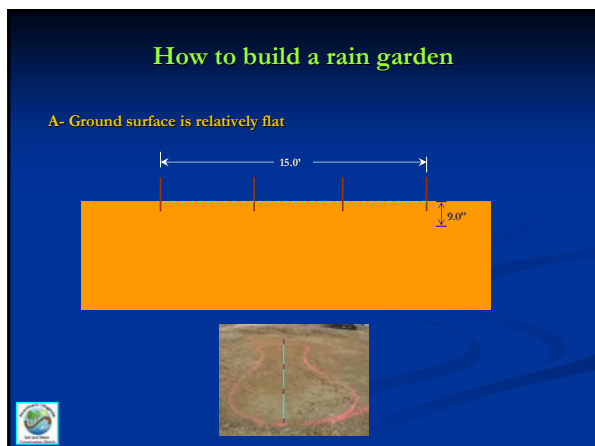
How to build a rain garden

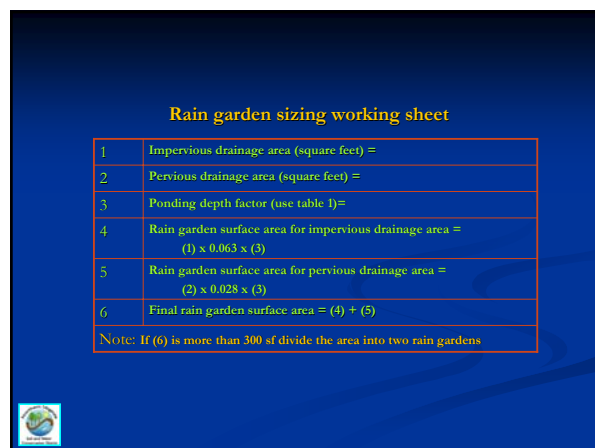
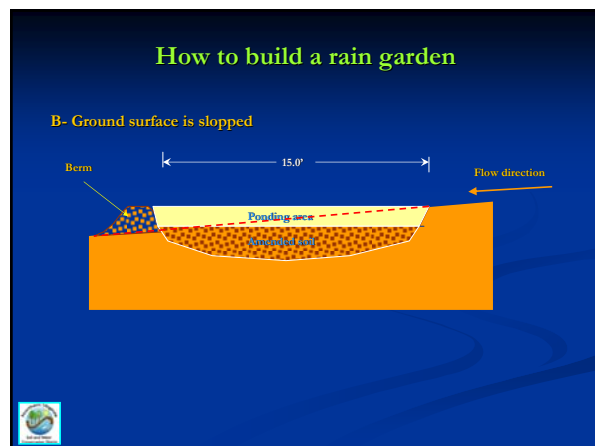
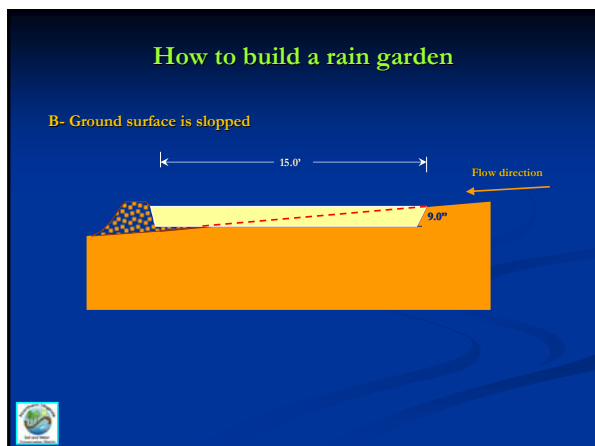
How to measure slope



Slope (%) = $(AB/AC) \times 100 = (2.0/50.0) \times 100 = 4.0\%$







Questions?

Contact information:

Asad Rouhi

Urban Conservation Engineer

NVSWCD

Asad.rouhi@fairfaxcounty.gov

Phone: 703-324 1460



Planting Your Rain Garden



Northern Virginia Soil and Water Conservation District

The Rain Garden Landscape



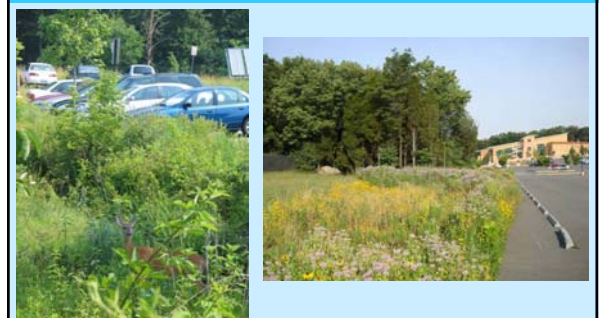
Northern Virginia Soil and Water Conservation District

The Rain Garden Landscape



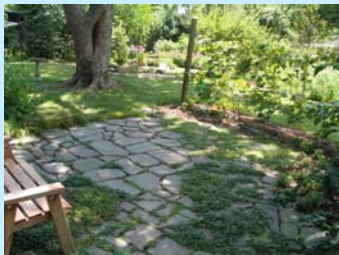
Northern Virginia Soil and Water Conservation District

The Rain Garden Landscape



Northern Virginia Soil and Water Conservation District

Rain Gardens Are Like Other Gardens

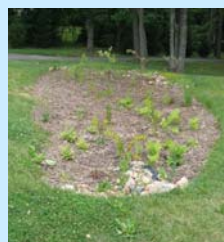


Plant choices are determined by:

- Personal aesthetic
- Landscape setting
- Site conditions
- Maintenance

Northern Virginia Soil and Water Conservation District

What makes Rain Gardens Unique?



The primary need when choosing plants is to support the rain garden's function.

A well-designed rain garden is both functional AND beautiful!

Northern Virginia Soil and Water Conservation District

Supporting Rain Garden Function

- Choose plants that can take the water (or lack of it)
- Remember the forest model
- Think pollution prevention
- Control erosion
- Plant for wildlife



Northern Virginia Soil and Water Conservation District

The Rain Garden Environment

Are rain gardens wet?



Northern Virginia Soil and Water Conservation District

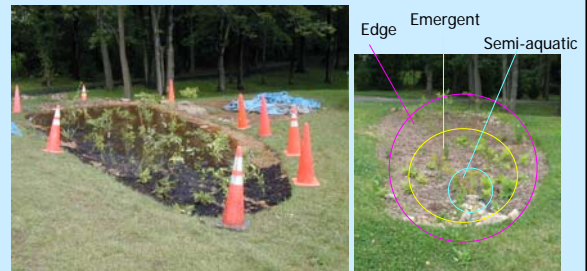
The Rain Garden Environment

- Extreme environment, similar to a floodplain.
- Choose deep-rooted plants that can tolerate a wide range of moisture conditions.



Northern Virginia Soil and Water Conservation District

Rain Garden Zones



Northern Virginia Soil and Water Conservation District

The Rain Garden Environment

- Moisture regime depends upon site conditions



Northern Virginia Soil and Water Conservation District

The Rain Garden Environment



Northern Virginia Soil and Water Conservation District

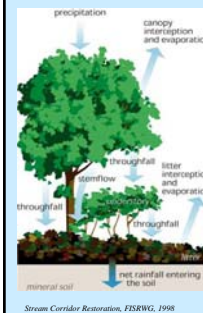
Test Your Rain Garden Does it Work?



Courtesy Wetland Studies and Solutions, Inc.

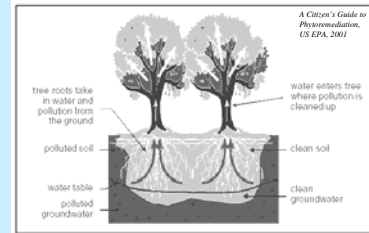
Northern Virginia Soil and Water Conservation District

The Forest Model



Stream Corridor Restoration, FSRWG, 1998

Rain gardens are designed to imitate forest functions.



A Citizen's Guide to
Phytoremediation,
US EPA, 2001

Northern Virginia Soil and Water Conservation District

Pollutants in the Rain Garden

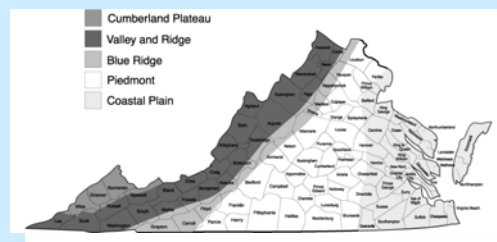


- Nutrients (Nitrogen and Phosphorus)
- Heavy Metals (Copper)
- Salt, Deicers, Sand
- Car fluids (Gasoline, Antifreeze, Oil, etc.)
- Pesticides & Herbicides

Northern Virginia Soil and Water Conservation District

What is a Native plant?

A **native plant** is "a plant that lives or grows naturally in a particular region without direct or indirect human intervention."



Northern Virginia Soil and Water Conservation District

Benefits of Native Plants

- Adapted to local conditions, including soils & precipitation
- Don't require inputs of chemical fertilizers & pesticides
- Save time and money
- Provide the habitat wildlife, including pollinators, need
- Beautiful!



Courtesy of Chris Bright, Earth Sangha

<http://www.nps.gov/plants/pubs/chesapeake/toc.htm>

Northern Virginia Soil and Water Conservation District

Natives Provide Habitat

- Food (Year-round berries, blossoms, and grains)
- Water
- Shelter
- Places to Raise young



Northern Virginia Soil and Water Conservation District

Avoid Invasive Plants

An **invasive non-native plant** is "a species intentionally or accidentally introduced by human activity into a region in which it did not evolve and which aggressively competes with, and displaces, locally adapted native plant communities.

- Displace native plant species
- Reduce wildlife habitat
- Alter ecosystem processes
- Maintenance nightmare!



http://www.dcr.virginia.gov/natural_heritage/invspinfo.shtml
<http://www.nps.gov/plants/alien/pubs/midatlantic/toc.htm>

Northern Virginia Soil and Water Conservation District

Rain Garden Plant Choices



- Choose plants that can withstand pollutants (if applicable) and locate in a sunny site!
- Keep in mind the forest model, use small trees, shrubs and grasses/perennials to increase vertical structure and encourage infiltration.
- Choose native plants to reduce chemical needs and provide habitat!

Northern Virginia Soil and Water Conservation District

Inlet, Outlets & Berms



Northern Virginia Soil and Water Conservation District

Inlet, Outlets & Berms



Northern Virginia Soil and Water Conservation District

Seeds, Plugs or Pots ?



Plugs

Better for naturalistic gardens. Plant @ 1 to 1.5 ft. on center



Pots

Better for traditional gardens. Plant 3 inch to 1 gal plants @ 2-3 ft. on center

Northern Virginia Soil and Water Conservation District

10 Rain Garden Plants

Black Chokeberry
(Red Chokeberry)



Winterberry holly



Virginia Sweetspire



Elderberry



Arrowwood viburnum



Northern Virginia Soil and Water Conservation District

10 Rain Garden Plants

Brown-eyed or Black-



Joe Pye weed



Switchgrass



Ox-eye sunflower



Obedient plant



Northern Virginia Soil and Water Conservation District

Resources

Rain Garden Plant Lists

- VDOF Rain Garden Guide - <http://www.dof.virginia.gov/rft/rain-gardens.shtml>
- Plants for Bioretention - Ann English (LIDC, Inc.)
- 10 Rain Garden Plants
- Resources for Homeowners

Additional Web Resources

- Invasive Pocket Guide: www.nature.org/maryland/invasives
- MD Rainscapes: <http://209.142.214.237/rainscapes/garden.htm>

Northern Virginia Soil and Water Conservation District

Local Rain Gardens

- Hidden Oaks Nature Center, Annandale
- Providence Supervisor's Office, Fairfax
- Green Springs Garden, Alexandria
- Alexandria Central Library, Alexandria
- Langston Brown Community Center, Falls Church

Northern Virginia Soil and Water Conservation District

When Selecting Plants...

- Choose plants wisely based on moisture conditions at your site. It's tough for rain garden plants!
- **TEST your rain garden before the plants go in.**
- Choose plants that can take pollution, and mimic forest structure by including shrubs, perennials and grasses.
- Despite the forest model, consider before planting trees.
- Choose plants with deep roots that control erosion or reinforce entry and exit points
- Plan for year-round habitat and aesthetics
- Plant densely, but plan for mature growth

Northern Virginia Soil and Water Conservation District

Contact Information



Christin Jolicoeur
Watershed Specialist
703-324-1423
Christin.jolicoeur@fairfaxcounty.gov

Northern Virginia Soil and Water Conservation District

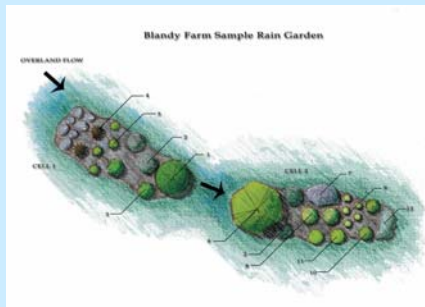
Rain Garden Soils



- Shallow (2-3') and can limit root growth
- Plant trees on edges
- Roughen bottom and sides of rain garden
- Choose plants that tolerate a range of soil types.

Northern Virginia Soil and Water Conservation District

The Rain Garden Landscape



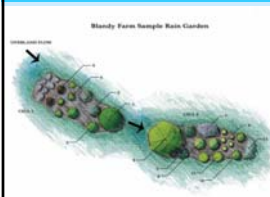
Northern Virginia Soil and Water Conservation District

The Rain Garden Landscape

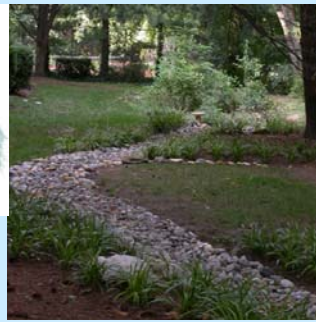


Northern Virginia Soil and Water Conservation District

The Rain Garden Landscape



- Inlet and outlets can be reinforced with stone or planted with deep-rooted plants



Northern Virginia Soil and Water Conservation District

Rain Garden Design

- Orientation should maximize infiltration of runoff.
- Think about how water will enter and exit the rain garden. Do you need erosion control?
- Design extends to inlet and outlet structures.
- Consider the larger landscape setting when choosing shape, size and location.

A well-designed rain garden is functional AND is a beautiful part of the larger landscape!

Northern Virginia Soil and Water Conservation District

Are You Ready to Plant?



Northern Virginia Soil and Water Conservation District

Rain Gardens: Maintenance and Lessons Learned



Outline

- Lessons learned from projects
- General maintenance suggestions

Lesson Learned #1 – Take some time to plan. You'll need to lay out your garden area and you should call Miss Utility to mark any utility lines nearby. You will also likely need to add mulch to improve the existing soil, or replace the soil with a biofiltration mix, so you'll need to order that.



Not sure if you need to amend the soil? Did a hole 1-2 feet deep, fill it with water, and see if it drains within 48 hours.



Lesson Learned #2: Excavation is hard work – consider mechanical assistance or recruit friends/neighbors!



Lesson Learned #3: Create a plan for what you'll do with the soil that you dig out. Build a berm, use it in another area of your yard, or have it removed.



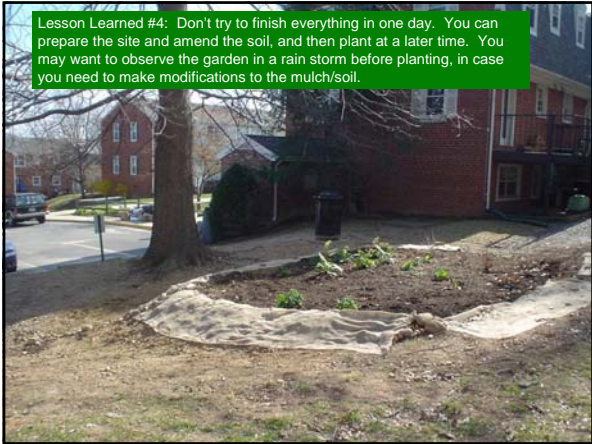
Raingarden (during storm event)



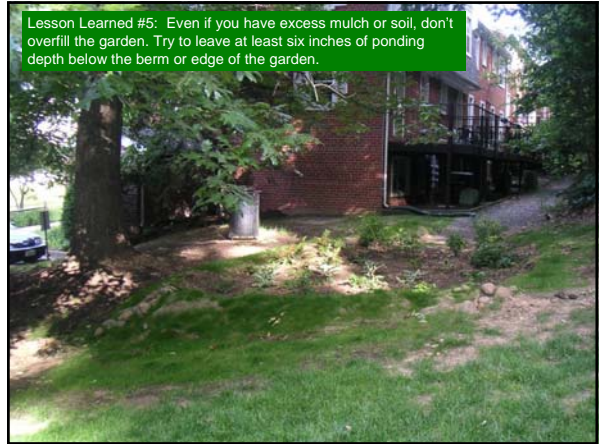
Raingarden (next day)



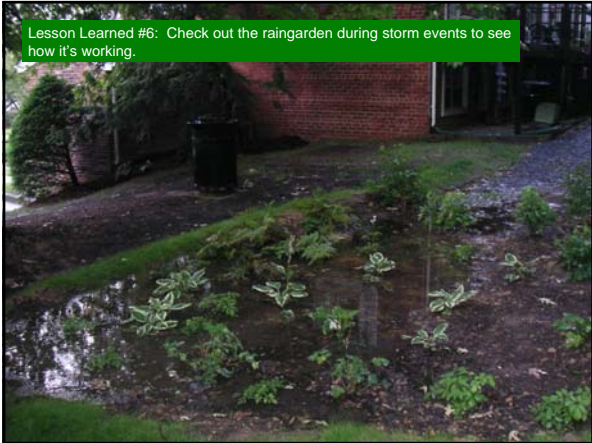
Lesson Learned #4: Don't try to finish everything in one day. You can prepare the site and amend the soil, and then plant at a later time. You may want to observe the garden in a rain storm before planting, in case you need to make modifications to the mulch/soil.



Lesson Learned #5: Even if you have excess mulch or soil, don't overfill the garden. Try to leave at least six inches of ponding depth below the berm or edge of the garden.



Lesson Learned #6: Check out the raingarden during storm events to see how it's working.



McKinley Elementary School Raingarden – area near sidewalk retained water and froze up in the winter.



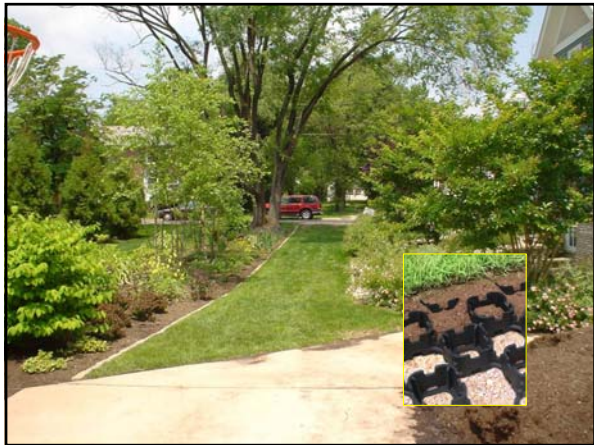


Raingarden Maintenance

- Typical maintenance activities for any garden area apply for raingardens as well.
- Initially, water the plants if it doesn't rain, especially during the first season.
- Add wood or leaf mulch to the surface of the garden to enrich the soil and control weeds. Wood mulch can help filter out pollutants as well.
- Weed the garden occasionally.
- If you create a berm, it may settle over time and you may need to add soil to it after a year or two.



Raingarden at rear of yard



Questions?

- Green Living Home and Garden Tour – Sunday June 7th, 1-5 PM. Check www.arlingtonenvironment.org after May 1st for tour booklet.
- Rain Barrel workshops – list posted in mid-March! Go to <http://arlingtonenvironment.org/barrel.htm>

Aileen Winqvist
awinqvist@arlingtonva.us
 703-228-3610

Meeting Announcement

Chesapeake Bay Phase III Program Update

Hosted By	Northern Virginia Regional Commission Department of Conservation and Recreation – Division of Chesapeake Bay Local Assistance
When	Tuesday, September 22, 2009 10 a.m. – 12 noon
Where	Northern Virginia Regional Commission Chesapeake Conference Room 3060 Williams Drive, Suite 510 Fairfax, VA 22031 www.novaregion.org/directions.htm
Workshop Description	<p>Representatives from the Department of Conservation and Recreation's Division of Chesapeake Bay Local Assistance (CBLA) will provide an update on their Phase III Review Process. The purpose of this meeting is for CBLA to update localities on the progress of the Phase III program and to encourage open dialogue among participants.</p> <p>The Phase III requirements currently under development are driven by Sec. 9 VAC 10-20-191 of the Chesapeake Bay Preservation Area Designation and Management Regulations. Under these requirements, local governments must review their land development regulations and processes, which include, but are not limited to, zoning ordinances, subdivision ordinances, erosion and sediment control ordinances, and the plan of development review process, as necessary to comply with the provisions of the Act. For more information, visit: http://www.dcr.virginia.gov/chesapeake_bay_local_assistance/phase3intro.shtml</p>
Additional Information	FREE Coffee and water will be provided.
Contact Information	Please RSVP to Laura Grape, lgape@novaregion.org ; 703.642.4625

This meeting is funded in part by the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA07NOS4190241 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.



3060 Williams Drive
Suite 510
Fairfax, VA 22031



703-642-0700
FAX 703-642-5077
info@novaregion.org

CHESAPEAKE BAY PRESERVATION ACT PHASE III PROGRAM UPDATE

Tuesday, September 22, 2009
10 AM – 12 NOON

Northern Virginia Regional Commission
Chesapeake Conference Room

10 – 10:15 AM
WELCOME

10:15 – 11:15 AM
UPDATE ON THE PHASE III PROGRAM
David Sacks, Assistant Division Director
Daniel Moore, Principal Environmental Planner
VA Department of Conservation and Recreation – Chesapeake Bay Local Assistance
david.sacks@dcr.virginia.gov and daniel.moore@dcr.virginia.gov

11:15 – 11:20 AM
BREAK

11:20 AM - noon
DISCUSSION



This workshop was funded in part by the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NAO8NOS4190466 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.

Chesapeake Bay Phase III Program Update

Registrants – September 22, 2009

	Name	Organization
1	Bob Slusser	Virginia DCR – Potomac Watershed Office
2	Claudia Hamblin-Katnik	City of Alexandria
3	Adrian Fremont	City of Fairfax
4	Jeff Harn	Arlington County
5	Noel Kaplan	Fairfax County
6	Mr. Kelly Vanover	Virginia DCR – Potomac Watershed Office
7	Mike Rolband	WSSI
8	Linnea Fetcher	Town of Vienna
9	Jason Papacosma	Arlington County
10	Qianqian Li	Arlington County
11	Cornelius Cooper	Arlington County
12	John Friedman	Fairfax County
13	Laura Edmonds	Loudoun County
14	Bill Hicks	City of Falls Church
15	Holly Chu	Town of Vienna
16	David Sacks	DCR – CBLA
17	Daniel Moore	DCR – CBLA
18	Joan Salvati	DCR – CBLA
19	Gary Switzer	DCR
20	Bill Nell	WSSI
21	George Harry	Arlington County
22	Voltaire Ronquillo (?)	Arlington County
23	Madan Mohan	Prince William County
24	Jason Papacosma	Arlington County
25	Qianqian Li	Arlington County
26	Patty Dietz	Prince William County

The Chesapeake Bay Preservation Act: Phase III and Compliance Evaluations

September 22, 2009
Northern Virginia Regional Commission
Northern Virginia
Local Government Planning Staff



Presentation Overview

- Phase III Program
- Advisory Reviews
- Local Program Compliance Evaluations
- Expected Schedule



Elements of a Local Bay Act Program



- **Phase I:** Mapping of Chesapeake Bay Preservation Areas and adoption of management program in local ordinances
- **Phase II:** Adoption of Comprehensive Plan components
- **Phase III:** Review and revision of local codes for inclusion of specific standards that implement water quality performance criteria



Requirements of Phase III

- Six provisions applicable to approved plats and plans
(9 VAC 10-20-191 A 4 & 5)
- Specific development standards to address the three general performance criteria must exist in ordinances
(9 VAC 10-20-191 A 2)
- Identify and resolve obstacles and conflicts to achieving the "water quality goals of the Act" within local programs and ordinances
(9 VAC 10-20-191 B 1 & 2)



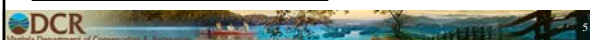
Required Provisions for Plans and Plats

Local ordinances must require approved plats and plans to have the following:

1. a depiction of RPA and RMA boundaries
2. a notation for the requirement to retain an undisturbed and vegetated 100-foot wide buffer
3. a notation regarding the requirement for pump-out for on-site sewage treatment systems
4. a notation regarding the requirement for 100% reserve drainfield
5. a notation that development in the RPA is limited to water dependent facilities or redevelopment
6. a delineation of the buildable areas on each lot*



*Item #6 is not required to be implemented through ordinances



Specific Development Standards

Local land development ordinances must contain "specific development standards" that implement the three general performance criteria. (9 VAC 10-20-120 1, 2 & 5)



- Minimize Land Disturbance
- Preserve Indigenous Vegetation
- Minimize Impervious Cover

The Checklist for Advisory Review of Local Ordinances provides suggested ordinance provisions with specific standards



Identify and Resolve Obstacles and Conflicts

Local governments must review and revise land development ordinances and requirements to:

- Eliminate obstacles to achieving water quality goals of the Chesapeake Bay Preservation Act.
- Ensure all components of the local Bay Act program are consistent in protecting state waters.

(9 VAC 10-20-191 B 1 & 2)



DCR Phase III Review Approach

- **Advisory Reviews of Local Ordinances.** DCR staff will review local ordinances using the **Checklist for Advisory Review of Local Ordinances** and the **Plan and Plat Consistency Review Checklist**. Results of the review will be summarized in a report to the locality.
- Localities will be encouraged to adopt ordinance amendments as needed to incorporate plan and plat requirements and to add ordinance provisions to assist in implementing the three performance criteria.
- CBLA Staff will provide assistance with model ordinance provisions as needed.
- CBLA compliance evaluations of local Bay Act programs will include an enhanced review of performance criteria implementation to gauge adequacy of ordinance standards.



Local Program Compliance Evaluations

- An evaluation of the **implementation** of the locality's Bay Act program
- Occur approximately every five years
- Formal Review by the Chesapeake Bay Local Assistance Board
- Review is based on requirements in the Regulations
- Beginning in 2010, compliance evaluations will include new or enhanced components

9 VAC 10-20-250.2 b:

"Upon a satisfactory finding resulting from the compliance review, the Board will certify that the local program is being implemented and enforced ... consistent with the Act and [Regulations] ... and is therefore in compliance."

As of September 2009, 83 of 84 localities have completed a review; 72 localities will have been found fully compliant.

Local Program Compliance Evaluation Review Elements

- Adequate Implementation of the 11 land use and development performance criteria:
 1. Minimize land disturbance
 2. Preserve indigenous vegetation
 3. BMP maintenance
 4. Plan of Development review process
 5. Minimize impervious cover
 6. E & S for development > 2,500 sq. ft.
 7. Septic pump-out
 8. Stormwater management
 9. Agricultural conservation assessments
 10. Silviculture exemption
 11. Wetlands permits



Local Program Compliance Evaluation Review Elements

- Use and application of local CBPA map
- Appropriate application of allowed exceptions
- Record of enforcement of violations
- Appropriate documentation for all types of development approved in RPA, RMA, and IDA (WQIA, stormwater calculations, etc.)

All review elements are based on specific requirements in the Regulations

Local Program Compliance Evaluation Review Elements

What's New:

Review for the implementation of Phase III program requirements, to include:

- A review of ordinances for plan and plat requirements
- A review of approved development plans and files with a stronger focus on the implementation of the three general performance criteria (minimize impervious cover, preserve indigenous vegetation, minimize land disturbance)

Where the combination of ordinances and approved plans do not address the Phase III requirements, conditions may be imposed by the Chesapeake Bay Local Assistance Board

Local Program Compliance Evaluations

New or Enhanced Review Items Under Consideration

- Ensure required Comprehensive Plan elements still exist; verify information is based on most current data.
- Requirement for Agricultural Assessments (conservation assessments and conservation plans).
- Agricultural Buffer Encroachments; verify that approved encroachments have required BMPs in place, and locality has a process for and is pursuing enforcement when needed.
- Comprehensive Plan Implementation; verify implementation measures in comprehensive plan have been completed. Verify development approvals are consistent with Comprehensive Plan (Bay Act elements) policies.



Phase III Consistency

A Board finding of Phase III Consistency will be determined by:

1. Existence of required plan and plat provisions in the local ordinances
2. Demonstrated ability to implement the three general performance criteria as determined by a compliance evaluation plan review
3. Implementation of the three general performance criteria must be based at least in-part on specific ordinance provisions or written administrative processes



Review and Evaluation Schedule Northern Virginia Localities

Locality	Phase III Advisory Review	Compliance Evaluation
Alexandria	February 2010	Sept. 2012
Arlington Co.	TBD	June 2013
Clifton	TBD	Dec. 2012
Dumfries	TBD	Dec. 2013
Fairfax (City)	TBD	March 2013
Fairfax Co.	March 2010	Sept. 2012
Falls Church	June 2010	Dec. 2012
Haymarket	TBD	Sept. 2013
Herndon	May 2010	Sept. 2012
Occoquan	November 2009	Sept. 2011
Prince William Co.	December 2009	Dec. 2011
Quantico	TBD	March 2013
Vienna	September 2009	June 2011

Compliance Evaluations are conducted for a locality every five years.
Phase III Advisory Ordinance Reviews to be completed by March 2011



Compliance Evaluation And Phase III Expected Schedule

June 15, 2009:	CBLAB authorized proceeding with Phase III Advisory Code and Ordinance Reviews
July 24, 2009:	Notification to localities of Phase III program requirements and Advisory reviews
September 2009:	Begin advisory review of ordinances for all 84 localities
Sept - Oct 2009:	Discussions with Localities
Nov/Dec 2009:	Detailed discussions with CBLAB regarding revisions to Compliance Evaluation program.
March 2010:	Approval of Compliance Evaluation program by CBLAB
March 2011	Complete Advisory Reviews
Ongoing:	Local government outreach and technical assistance



Questions?



Contact: Division of Chesapeake Bay Local Assistance
Phone: 1-800-243-7229 or (804) 225-3440 www.dcr.virginia.gov

Advisory Review Checklists

General Performance Criteria

Part 1- Minimize Land Disturbance 18 options

Subcategories:

Open Space Requirements
Clearing and Grading Requirements
Utility and Easement Requirements
Low Impact Development Concepts
Better Site Design Concepts

Sample Question:

Is there an ordinance provision, or other adopted document, that requires that all clearing and grading plans or equivalent (including individual lots) specify limits of clearing and restricts clearing to the minimum necessary for the construction of the project?



Advisory Review Checklists

General Performance Criteria

Part 2 – Preserve existing vegetation 18 options

Subcategories:
Sensitive Land Protection/Preservation
Vegetation and Tree Protection Requirements
Better Site Design Concepts



Sample Question:
Is there an ordinance provision, or other adopted document, that includes clear language to protect woody vegetation outside of the construction footprint on individual lots or development sites?

Advisory Review Checklists

General Performance Criteria

Part 3 – Minimize Impervious Cover 25 options

Subcategories:
Parking Requirements
Low Impact Development Concepts
Redevelopment and Infill Development Concepts
Road Design Requirements
Pedestrian Pathways and Driveways

Sample Question:
Are there ordinance provisions, or other adopted documents, that allow for shared and off-site parking in certain zoning districts, such as commercial and office districts?



Shoreline Management Planning in Northern Virginia

Wednesday, September 23, 2009
11 a.m. – 1 p.m.

Occoquan Town Hall
314 Mill Street
Occoquan, VA 22125-0195

Shoreline management plans provide a summary of existing and future shoreline conditions and associated recommendations for the management of shorelines in a particular area of interest.

Scott Hardaway, Shoreline Studies Program Director at the Virginia Institute of Marine Sciences will lead the discussion with an interactive presentation as to the nuances of managing shorelines as well as provide examples of recommendations and associated costs of shoreline management plans developed in other areas of coastal Virginia.

For questions or to RSVP, please contact Laura Grape at lgrape@novaregion.org or 703-642-4625.

***About Scott** - Scott has been working for VIMS since 1979 and continues to perform research on a variety of coastal problems, primarily shoreline erosion along the Chesapeake Bay and ocean shorelines of Virginia and Maryland. The use of headland breakwater systems for shoreline protection has been the focus of many research projects and is an integral part of numerous shoreline management plans developed by the Shoreline Studies Program at VIMS.*

For more information about the Shoreline Studies Program visit: <http://web.vims.edu/physical/research/shoreline>



This workshop was funded in part by the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NAO8NOS4190466 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.

3060 Williams Drive
Suite 510
Fairfax, VA 22031



703-642-0700
FAX 703-642-5077
info@novaregion.org

SHORELINE MANAGEMENT PLANNING IN NORTHERN VIRGINIA

Wednesday, September 23, 2009
11 AM

Town of Occoquan
Town Hall
314 Mill Street
Occoquan, VA 22125-0195

WELCOME & INTRODUCTIONS

INTRODUCTION TO SHORELINE MANAGEMENT PLANNING

Scott Hardaway, Shoreline Studies Program Director
Virginia Institute of Marine Sciences (VIMS)
hardaway@vims.edu

DISCUSSION



This workshop was funded in part by the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NAO8NOS4190466 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.

PLEASE LET US KNOW YOU WERE WITH US!

Shoreline Management Planning in Northern Virginia

Registrants – September 23, 2009

	Name	Organization
1	Patty Dietz	Prince William County
2	Greg Wieler	US Fish and Wildlife Service – Mason Neck & Occoquan Bay Refuges
3	Matt Williams	The Engineering Groupe
4	Ned Marshall	The Engineering Groupe
5	Lauryn Sacha	VA Dept of Conservation and Recreation – Mason Neck State Park
6	Mayor Iris A. Tharp	Town of Quantico
7	Council Member MaryLou A DiMarzio	Town of Quantico
8	Mary Ann Welton	Fairfax County
9	Claudia Cruise	Town of Occoquan

Appendix E

Gardening for Clean Water Workshop Series Follow-Up Survey of 110 Participants

Raingarden Workshop Attendee Follow Up Survey

This survey was sent to 110 people who have attended the workshop, and about 30 filled out the survey (27%). We are missing about 40 emails from the workshop at Green Spring Gardens.

1. Did you install a rain garden after attending the rain garden workshop?

Answer	Percentage	Number
Yes	20.0%	6
No	80.0%	24

answered question 30
skipped question 0

2. If you did not build a rain garden after attending the workshop, what is the reason?

Answer	Percentage	Number
I decided the site is not appropriate for rain garden	50.0%	12
I'm planning to create a rain garden, but haven't gotten to it yet	37.5%	9
Installing a rain garden is too much work	8.3%	2
Installing a rain garden is too expensive	8.3%	2
I do not have the equipment needed to install a rain garden	8.3%	2
I am still not sure where to get rain garden plants	0.0%	0
I am still not sure how to install a rain garden	8.3%	2

Other (please specify) 7

1. incorporated rain garden concepts into other solutions to the water management issues on our property

Thu, Sep 17,
2009 10:57
AM

 [Find...](#)

2. The workshop was full, so I could not attend





Tue, Sep 15,
2009 10:13
AM

 [Find...](#)

3. other methods-rain barrels,diverting water to wet gardens but not truly rain gardens - too many tree roots could be affected - personally and professionally I think rain





Tue, Sep 15,
2009 9:52

 [Find...](#)

	gardens might be too high risk and expensive for my tastes	AM	
4.	I went to learn more about building them to help other people, not to build them myself	Tue, Sep 15, 2009 8:19 AM	 Find...
5.	I live at a condominium with large grounds, but I am limited in what I can do personally. The association is installing a small rain garden in an area near my unit (with my full and vocal support).	Mon, Sep 14, 2009 7:42 PM	 Find...
6.	Just haven't gotten around to it...not enough time.	Mon, Sep 14, 2009 5:56 PM	 Find...
7.	wanted to at ASFS but didn't have APS support	Wed, Sep 9, 2009 3:37 PM	 Find...

answered question 24
skipped question 6

3. Did you encounter any unexpected challenges in designing or building your rain garden? (If you have not built a rain garden, please skip to the next page).

1.	yes, we encountered a concrete pipe when we were excavating that was not marked so the gravel layer is larger than expected.	Wed, Sep 23, 2009 6:09 PM	 Find...
2.	Yes. The water table is very high where we were planning to put the rain garden so we have to re-think what we're going to do.	Sat, Sep 12, 2009 9:36 AM	 Find...
3.	My yard is too small for a real rain garden (only 25x60'), so I trenched my yard down to that far end of the yard, put in a drywell, and planted a Joe Pye Weed (a single plant who is routinely not happy with me). I never realized rain gardens needed a certain amt of volume to work properly (once it was explained, it made sense)	Fri, Sep 11, 2009 10:54 PM	 Find...
4.	I did not install a rain garden per se but did install a dry well to reduce surface erosion and improve ground retention of rain water.	Wed, Sep 9, 2009 6:19 PM	 Find...
5.	Yes, the contractor who did the digging got mired in the mud and two mature trees at the edge of the garden were killed as a result of soil compaction/root compaction. We had a good time planting the plants with the help of our neighbors.		

answered question 5
skipped question 25

4. What advice can you share to help others who want to build rain gardens?

1. Use at least 70% coarse brown sand. Follow the engineering specs from the Low Impact Development Supplement from the Northern VA Regional Commission.

Wed, Sep
23, 2009
6:09 PM



2. My suggestion is to study the area during a rainy season first. Put small barriers in place where you intend to build sidewalls or dig the underdrains and just see how long it takes to fill and dissipate water. Consult with plant people - you may be able to secure several types of plants from neighbors as rain garden plants typically grow fast! Enjoy!

answered question 2

skipped question 28

5. Are there any additional resources you wish you had while designing or building your rain garden?

Answer	Percentage	Number
Assistance with locating, sizing, laying out the rain garden	83.3%	5
Help locating where to buy rain garden plants	16.7%	1
Help selecting plants for the rain garden	33.3%	2
Financial incentives/grants/rebates	50.0%	3
Help constructing the rain garden	33.3%	2

Other (please specify) 2

1. I put in a dry well instead of a rain garden. The seminar helped me with that decision.

Wed, Sep 9,
2009 6:19 PM



2. One of the gardens was installed by FFCO as part of the Little Hunting Creek Drainage Basin Restoration. Other gardens were installed in the community but on a smaller scale.





Wed, Sep 9,
2009 1:19 PM



answered question 6

skipped question 24

6. What type of maintenance has your rain garden required? Did you feel adequately prepared for the maintenance activities and if not, what surprised you?



- | | | | |
|----|---|----------------------------|---|
| 1. | Very little maintenance. I just needed to screen the outflow to prevent mosquito breeding in corrugated pipe. Then just weeding 2-3 times a year. | Wed, Sep 23, 2009 6:09 PM |  Find... |
| 2. | Instead of a full blown raingarden, we are in the process of changing the grade to slow the water runoff and using rocks and plants to slow/absorb water. | Sat, Sep 12, 2009 9:36 AM |  Find... |
| 3. | My poor Joe Pye Weed plant looks pretty sad many days. The rain barrel overflow goes directly to him and the yard slopes down to him as well. I'm hoping next year will be better as his roots get established. | Fri, Sep 11, 2009 10:54 PM |  Find... |
| 4. | Berm maintenance around the dry well. | Wed, Sep 9, 2009 6:19 PM |  Find... |
| 5. | Weeding and mulching. We hired a contractor for the large garden; the smaller ones are done by neighbors. We were lucky to get good growth and not need to replant. | | |

answered question 5
skipped question 25

7. Where is your rain garden located?

Answer	Percentage	Number
Single family home	75.0%	3
Apartment/Condo complex	0.0%	0
Business	0.0%	0
School	0.0%	0
Place of worship	0.0%	0
Park or public space	25.0%	1

Other (please specify) 2

- | | | |
|---|----------------------------|---|
| 1. duplex | Fri, Sep 11, 2009 10:54 PM |  Find... |
| 2. Community grounds Homeowners Association | Wed, Sep 9, 2009 1:19 PM |  Find... |

answered question 4
skipped question 26

8. In your opinion, how well is the rain garden working?

Answer	Percentage	Number
It is working OK, but could be better	50.0%	2
It is acceptable	25.0%	1
It is working great!	25.0%	1
Not working at all	0.0%	0

Please describe any problems you are experiencing: 1

1. We think one was installed a bit too high and doesn't receive as much water as it could hold but it appears to be working, just on a smaller scale.



answered question 4
skipped question 26

9. Would you be interested in having your rain garden featured on a tour of environmentally friendly gardens? If so, please provide your name, phone number, and email address.

Yes 50.0% 2

No 50.0% 2

Contact info 3

- | | | |
|--|---------------------------|---|
| 1. Nicki Foremsky, 703-435-6560, Nicki@reston.org | Wed, Sep 23, 2009 6:09 PM |  Find... |
| 2. It's not quite ready yet but when it is, we'll be happy to show it. | Sat, Sep 12, 2009 9:36 AM |  Find... |

3. Chris Pryately 703-360-0706 doeghouse@verizon.net

Wed, Sep 9, 2009 1:19 PM



answered question 4
skipped question 26

10. Would a financial incentive to offset the cost of a rain garden make you more likely to build a rain garden?

Yes 52.0% 13

No 48.0% 12

answered question 25
skipped question 5

11. Have you taken any of the following actions to manage storm water including reducing storm water runoff on your property? (Check all that apply.)

Answer	Percentage	Number
Re-directed downspouts to gardens or mulched areas	59.3%	16
Reduced area of pavement	11.1%	3
Replaced driveway or paved surface with permeable pavement	3.7%	1
Installed rain barrel(s)	48.1%	13
Installed a Cistern	0.0%	0
Created a swale	25.9%	7
None of the above	22.2%	6

Other (please specify) 8

1. installed stone "creek beds" and directed water "safely" through the property







Thu, Sep 17,
2009 10:59
AM



2. A silver maple whose roots affected our whole driveway project has finally been

Tue, Sep 15,



removed from the neighbor's property. We are planning to redirect downspouts, reduce pavement area, replace driveway and install rain barrel this fall.	2009 11:49 AM	Find...
3. Originally built the driveway with permeable materials.	Tue, Sep 15, 2009 10:15 AM	 Find...
4. Captured stormwater in a percolation drain system before sending it into the storm drains, thereby reducing the eroded soil content down the stormdrain.	Mon, Sep 14, 2009 7:58 PM	 Find...
5. discovered a mini-rain garden which I didn't recognize prior to the workshop. Also planted natives and succulents.	Sat, Sep 12, 2009 4:13 PM	 Find...
6. Installed a dry well instead of a rain water to catch and retain excess surface water.	Wed, Sep 9, 2009 6:23 PM	 Find...
7. created stone and wood erosion barriers	Wed, Sep 9, 2009 1:29 PM	 Find...
8. planted native plants instead of lawn on part of property	Wed, Sep 9, 2009 1:02 PM	 Find...

answered question 27
skipped question 3

12. Are you a landscape professional (i.e., work at a landscaping firm or as a landscape architect)?

Yes 10.7% 3

No 89.3% 25

Other (please specify) 1

answered question 28
skipped question 2

13. If you are a landscape professional, have you installed rain gardens for clients?

Yes 4.3% 1

No 17.4% 4

Not a landscape professional 78.3% 18

answered question 23
skipped question 7

14. If you are a landscape professional, how would you describe the demand for rain gardens from your clients?

Answer	Percentage	Number
Low - not that many requests for rain gardens	13.6%	3
Moderate - some clients are interested in rain gardens	4.5%	1
High - many clients request rain gardens	0.0%	0








Not a landscape professional 81.8% 18

answered question 22
skipped question 8

15. What topics for workshops or educational opportunities are of interest to you? Select as many topics as you find interesting/helpful.

Answer	Percentage	Number
Native plants	65.5%	19
Sustainable lawn care	65.5%	19
Stormwater management	58.6%	17
Rainwater collection (cisterns/rain barrels)	51.7%	15
Backyard wildlife habitat	51.7%	15
Green home re-modeling	48.3%	14
Energy conservation	48.3%	14
Permeable pavement	44.8%	13
Green roofs	37.9%	11

Other (please specify) 7

1. Would really appreciate more info on permeable paving that works for homeowners.	Tue, Sep 15, 2009 11:49 AM	 Find...
2. appropriate use of plants to site.	Tue, Sep 15, 2009 10:15 AM	 Find...
3. would like cost estimates for rain gardens/permit process/insurance requirements etc presented in a class	Tue, Sep 15, 2009 10:06 AM	 Find...
4. Since I need a new driveway in the near future, I think I would put my money into permeable pavement rather than a rain garden. I am interested in pavement that can withstand car traffic.	Sat, Sep 12, 2009 4:13 PM	 Find...
5. We're experimenting with replacing our grass with Buffalo Grass	Sat, Sep 12, 2009 9:38 AM	 Find...
6. Reducing mosquitos; attracting beautiful birds; discouraging woodpeckers.	Wed, Sep 9, 2009 6:23 PM	 Find...
7. A session on maintaining one's native plant areas once installed; this requires knowledge of which plants are 'weeds,' etc.	Wed, Sep 9, 2009 1:02 PM	 Find...



answered question 29









skipped question 1

16. Would you be interested in participating in a sustainable landscaper certification program?

Answer	Percentage	Number
Yes, as a landscaping professional, I would be interested	14.8%	4
Yes, as a customer, I would be interested	44.4%	12
No, as a landscaping professional, I would not be interested	0.0%	0
No, as a customer, I would not be interested	44.4%	12

Why or why not? 14

1. I am a master gardener and don't think I need certification in this field.	Tue, Sep 15, 2009 11:49 AM	 Find...
2. I have been working hard and spending a lot of money getting myself ready to do this	Tue, Sep	

	kind of work and would very much like the support of the state and surrounding counties so I can take my little business to the next step and create some jobs and help our environment - I'm thrilled to see you reaching out - I would also love a class tailored to this work that would cover insurance requirements, specific licensing requirements, contracts with clients, general sustainable contractors and sustainable subcontractors - I'm approaching this from a native plant/invasives removal/volunteer/park staff direction	15, 2009 10:06 AM	Find...
3.	I am a volunteer schoolyard planner and project manager, and would love to have this background.	Mon, Sep 14, 2009 7:58 PM	 Find...
4.	I'll make that a possibly interested customer--I like to be able to offer alternatives to or informed comment on grounds projects.	Mon, Sep 14, 2009 7:44 PM	 Find...
5.	incorporate native plants in my backyard	Mon, Sep 14, 2009 5:58 PM	 Find...
6.	Because not enough is known about sustainability, any classes are extremely helpful to the general public.	Sat, Sep 12, 2009 4:13 PM	 Find...
7.	There are so many plants beyond the limited variety at Home Depot. It can be overwhelming, and extremely difficult for bad clay soil in partly/mostly shady yards.	Fri, Sep 11, 2009 10:56 PM	 Find...
8.	Because we are trashing our county, environment, the bay!	Fri, Sep 11, 2009 4:48 PM	 Find...
9.	Time constraints, along with lack of enough motivation	Wed, Sep 9, 2009 11:13 PM	 Find...
10.	Depends on the time and cost of the program.	Wed, Sep 9, 2009 6:23 PM	 Find...

answered question 27

skipped question 3

Appendix F

Fall 2008 NVironment Newsletter

CLIMATE CHANGE MITIGATION

Reducing Northern Virginia's Carbon Footprint through Community Energy Planning

In March 2009, NVRC together with the German Embassy in Washington, D.C., hosted a workshop to introduce Community Energy Planning as an option for assisting Northern Virginia localities with making a strong commitment toward improving energy efficiency and reducing greenhouse gas emissions in their jurisdictions.



At the German Embassy, Peter Garforth, an independent energy consultant, leads a discussion with Northern Virginia officials on the benefits of Community Energy Planning.

Community Energy Plans, as described by Peter Garforth, an independent energy expert, focus on efficient energy infrastructure and use. As opposed to developing new sources of renewable energy, community energy plans are grounded on capturing waste energy from existing sources for providing services to a community. During the workshop, Garforth shared experiences from successful plans established in Copenhagen; Denmark; Mannheim, Germany; and Guelph, Ontario. In Mannheim, a combined heating and power network serves 65,000

See MITIGATION, page 5

Adaptation Planning Underway in Northern Virginia

In 2008, the Virginia Coastal Zone Management Program made a three-year commitment to focus its funding and efforts on building sustainable coastal communities through climate change adaptation planning and other similar efforts. This is an effort to develop climate resilient communities by taking proactive steps to prepare for climate change impacts.

With over 100 miles of heavily populated shoreline along the tidal Potomac River, the Northern Virginia Regional Commission (NVRC), through the Sustainable Shorelines and Community Management project, assesses areas most vulnerable to long-term and episodic sea level rise and quantifies impacts to the natural and built environments. The development of adaptation strategies, which may be incorporated into existing or new local policies, is currently underway.

See ADAPTATION, page 7

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- 2 Public Schools Think Green
- 2 Chesapeake Bay Executive Order
- 3 Only Rain Down the Drain - Version 2.0
- 4 A Network from the Bay to the Highlands
- 4 Virginia's Coastal GEMS
- 6 Bridging Communities, Restoring Waterways

PUBLIC SCHOOLS THINK GREEN

School Systems Improve Efficiency of Their Facilities

As the trees in Northern Virginia change to a tapestry of reds, oranges, and browns, students entering their new school year will find their campuses are greener than ever before. Over the summer months many school systems in the area began to reduce waste, conserve water, and improve energy efficiency in their buildings.

Falls Church City Public Schools has several projects that complement the city's growing dedication to energy efficiency and reduced consumption. The projects and programs range from updating hand dryers at school restroom facilities to installing cisterns that collect rainwater at Thomas Jefferson Elementary. The cisterns were made possible by a grant through the Virginia Department of Conservation and Recreation Water Quality Improvement Fund. Additionally, Land and Waters, Inc., a non-profit organization, will support the creation of an educational component along with the school's teachers. The school system has also renewed enthusiasm to recycle as many materials as possible, because the city now accepts mixed recyclables.

Also, the City of Alexandria is in the midst of an extensive retrofit of the Heating, Ventilating, and Air Conditioning (HVAC) system at Minnie Howard School. A solar-assisted ground source heat pump will

replace the outdated system, reducing energy needs and providing a financial benefit to the school.

Prince William County Schools are designing projects and setting goals to improve the natural environment. They integrate native species in all planting plans to support the reduction of stormwater runoff pollution. Additionally, the new design of Kettle Run Elementary School is staged to qualify for Leadership in Energy and Environmental Design (LEED) Certification, sponsored by the U.S. Green Building Council. In an effort to reduce landfill impacts, the school system has also made commitments to recycle construction debris.



A cistern at Thomas Jefferson Elementary collects rainwater from the school's rooftop.

Although the projects are in different phases of development, each will have a positive impact on the natural environment and on the learning environment. The Cool Schools initiative, managed by NVRC, promotes the ongoing efforts of school systems and assists them in identifying additional

opportunities for improving energy efficiency and reducing greenhouse gas emissions. ❖

For more information on Cool Schools, contact Samantha Ference at 703.642.4636 or sference@novaregion.org

NVRC RECEIVES deVOURSNEY BEST PRACTICE AWARD

Management of Regional Stormwater Campaign Recognized for Innovation



At the July 2009, Virginia Planning District Commission Annual Summer Conference, NVRC received the first ever deVoursney Best Practices Award from the Virginia Association of Planning District Commissions in recognition of the commission's innovative regional activities and work in managing the Northern Virginia Clean Water Partners - Regional Stormwater Education Campaign.

(r to l) NVRC Commissioner Martin Nohe (Prince William County); Executive Director, Mark Gibb; and Aimee Vosper, Director of Planning and Environmental Services receive the deVoursney Best Practices Award from Joyce French, Executive Director of Southside Planning District Commission.

ONLY RAIN DOWN THE DRAIN CAMPAIGN - VERSION 2.0

Pilot Study Uses Online Advertising to Prevent Stormwater Pollution

The use of online advertising through web-based channels is not a new concept for companies that market products and goods. But how useful is it for social marketing efforts, which have the goal of selling behavior change?

To answer this question, the Northern Virginia Clean Water Partners conducted a pilot study to assess the applicability of online advertising as part of their annual Regional Stormwater Education Campaign. The primary goal of the pilot study is to determine whether online advertising is more cost-effective than traditional radio advertising at increasing the number of visitors to their website - www.onlyrain.org - and in changing the three most common stormwater pollution-causing behaviors in urban areas:

- over-using fertilizer;
- dumping motor oil down the storm drain; and
- not picking up dog waste.

In spring 2009, the Partners hired Water Words that Work to conduct pre-campaign market research to assist in the development of targeted messages, to utilize the research findings to improve the campaign's website, to develop, and to place online advertisements on two search engines - Google and Yahoo! - and two social networking sites - MySpace and Facebook; and finally to analyze the results and effectiveness of these advertisements at increasing traffic to the campaign's website and at changing behaviors.

The pre-campaign research utilized an online panel format to discern the most effective messages for an advertising campaign to encourage individuals to take action to reduce pollution. Responses from the panel participants shaped the language used for the website and online advertisements to be placed in the summer.

Five hundred Northern Virginians from the participating jurisdictions completed a 15-minute online questionnaire, which involved listening to and rating two radio ads under consideration.

Respondents rated different messages as most compelling for each behavior. There was no single over-arching "best" message. For fertilizer web pages and advertisements, the most compelling

messages are "before it's too late," "best for the yard," and "working together makes a difference."

For dog doo advertisements and web pages, the most compelling messages are to alert pet owners that "dog doo pollutes," and that "working together makes a difference."

For motor oil disposal web pages and advertisements, the most compelling messages were "even a little oil is a lot of pollution" and "you'll pay a big fine if you get caught." Respondents are far

and away most eager to sign up for an e-mail newsletter that contains money-saving coupons they can use for their dogs, lawns, and vehicles.

The website content and the online ads reflect these results. Major findings from the pilot study reveal:

- The average cost per click is \$1.00
- Ads that offer "tips" and "coupons" dramatically outperform those that do not.
- More people click on pet waste and general clean water ads from among those placed on social networking sites.
- More people click on fertilizer and motor oil ads from among those placed on search engines.

While the campaign's efforts over the last five years using traditional radio advertising have proved to be effective, current budget constraints are restricting the amount of funding available for radio ad placement. At the same time, the methods by which residents are receiving their information are changing at a rapid rate. Online information is easily accessible, particularly in the techno-savvy Northern Virginia region, and may be targeted by city and Zip Code to improve reaching Northern Virginians specifically. Follow-up surveys of e-mail newsletter recipients will occur in fall 2009.

The Partners' Regional Stormwater Education Campaign supports local goals for demonstrating pollution-causing behavioral changes through stormwater outreach and education. ❖

For more information, contact:
Laura Grape at 703.642.4625 or
lgrape@novaregion.org

To sign up for the Only Rain Down the Drain e-mail newsletter, visit: www.onlyrain.org



A NETWORK FROM THE BAY TO THE HIGHLANDS

The Potomac Heritage National Scenic Trail Connects the Region



The Potomac Heritage National Scenic Trail (PHNST) is one of only 25 National Trails designated by Congress and represents a partnership to develop and maintain a network of locally managed trails for recreation, education, and transportation between the Chesapeake Bay and the Allegheny Highlands in Pennsylvania. The network spans four states, 40 units of the National Park System, five National Recreation Trails, and over 100 historic landmarks. Trail attractions include boating opportunities, water trails, bicycle routes, fishing, equestrian trails, picnicking, camping, and cross country skiing.

Although some gaps exist, an adventurer could trek much of the Potomac River shoreline in Northern Virginia along over 500 miles of designated trail segments that snake through the region. Arguably, the Potomac River is one of the most beautiful characteristics of Northern Virginia region. The PHNST provides the opportunity to see for yourself. ❖

For more information, contact Debbie Spiliotopoulos at dspilio@novaregion.org or 703.642.4631 or visit: www.nps.gov/pohe

VIRGINIA'S COASTAL GEMS

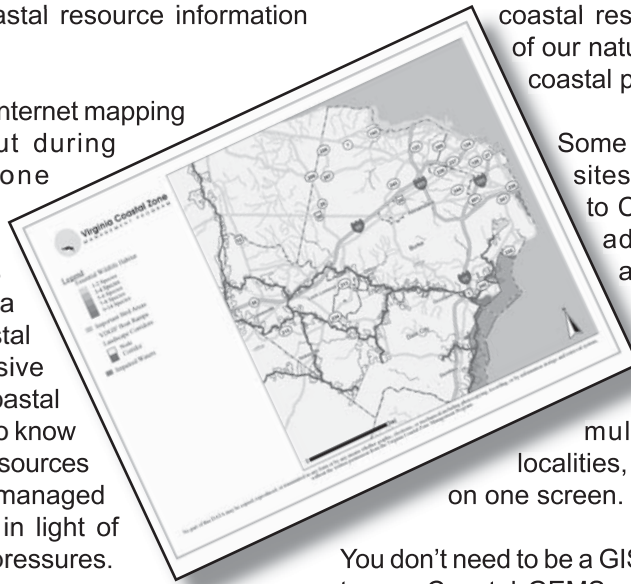
Online Data and Planning Tool Available for Coastal Resources

Developed by the Virginia Coastal Zone Management Program, Coastal GEMS (which stands for Geospatial and Educational Mapping System) is an online gateway to Virginia's coastal resource information and spatial data.

The idea for creating this Internet mapping application came about during a Virginia Coastal Zone Management Program workshop in 2001 when state and local partners expressed the need for a "vision" of Virginia's Coastal Zone and a comprehensive inventory of the state's coastal resources. They wanted to know the status of our coastal resources and how they could be managed in a sustainable fashion in light of increasing development pressures.

As a first step in achieving this "vision" of Virginia's Coastal Zone, CZM partners agreed it was important to identify and map the best remaining blue (water-based) and green (land-based) natural resources. Fostering a stronger understanding of the links between these activities on the land and in the water has become a major goal of Coastal GEMS.

The idea of identifying and mapping blue and green coastal resources grew into the concept of providing a gateway to access a comprehensive collection of coastal resource information from all of our natural resource agencies and coastal partners.



Some data are available on other sites and some are exclusive to Coastal GEMS, but a major advantage of this Internet application, is that it allows natural resource managers, decision-makers, and the public to select and overlay data layers from multiple Virginia agencies, localities, and academic institutions on one screen.

You don't need to be a GIS or coastal resource expert to use Coastal GEMS. The mapping features are easy to navigate and each layer has an informative fact sheet that explains the data, where it came from, and why it is important. ❖

For more information, contact:
Nick Meade, with the Virginia Coastal Zone
Program at nick.meade@deq.virginia.gov or visit:
www.deq.virginia.gov/coastal

MITIGATION, continued from page 1

customers within the immediate neighborhood of the plant, managed by MVV Energie Group. The plant's high efficiency significantly reduces contributions of harmful emissions by 30 to 35 percent. Mannheim's effort to improve efficiency through cogeneration serves as the model for communities striving for similar goals around the world.

Guelph, Ontario is one of these cities. Guelph is one of the first cities in North America to create a formal community energy plan that contains a 25-year vision for consuming less energy and producing less greenhouse gas per capita than comparable cities in Canada and less than the global average. Guelph serves as the national pilot for an energy performance labeling scheme for commercial and residential buildings. Another targeted goal stated in Guelph's plan is to have at least 30 percent of Guelph's anticipated electricity requirements be associated with Combined Heat and Power by 2031. The Mannheim, Germany example serves as a model for this type of cogeneration.

Although community energy planning has occurred in other areas of the world, until recently, no community in the United States has worked to redesign their energy infrastructure. Recognizing the importance of energy and the environment to its overall global competitiveness Loudoun County, Virginia, has decided to develop a County Energy Plan (CEP) that will direct the county's energy strategies over the next 30 years.

Dovetailing on the workshop held at the German Embassy in March 2009, Loudoun County, with support from the Northern Virginia Regional Commission; Garforth International, LLC; and other partners, initiated the development of the CEP in July 2009. A grant from the American Recovery and Reinvestment Act channeled through the United States Department of Energy - Energy Efficiency Community Block Grant (EECBG) program funded the initial assessment of current conditions related to energy and water use, as well as greenhouse gas emissions and

a corresponding community-wide energy plan developed with input from major Loudoun County business and citizen stakeholders. Scale projects will be identified to initiate implementation of the CEP across the county. These projects are developments with the size and timing such that "new guidelines" in line with the CEP can be applied within relatively large but contained boundaries. They are large enough to address both energy demand and supply within a single project and serve to jump start effective implementation of the CEP.

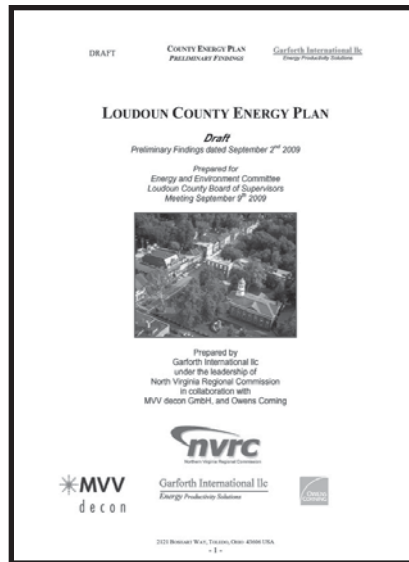
In general, the expectation is that the scale projects would use at least 30 to 50 percent less energy than would be the case with "business-as-usual" and would create 40 to 70 percent less greenhouse gas emissions. Prior to identifying these sites, a Decision Level – Integrated Energy Master Plan (IEMP) will evaluate in detail the economic, environmental, and energy reliability impacts of alternative energy approaches, as well as assess the risks associated with various environmental, common,

and legislative scenarios. Finally, the IEMP will identify the possible changes that might be necessary in terms of planning permissions, energy supply management structures, and community outreach and education.

Additional EECBG funds could be allocated to Loudoun County, and the CEP includes recommendations for their use. The Loudoun County CEP will be developed to ensure the County's long-term competitiveness and environmental performance.

Since July, the planning team hosted a series of community and stakeholder meetings. The final plan will be submitted to the County Board of Supervisors for approval – perhaps as early as November 2009.

For more information, contact:
Dale Medearis at 703.642.4630 or
dmedearis@novaregion.org



The Loudoun County Energy Plan will direct the county's energy strategies over the next 30 years.

BRIDGING COMMUNITIES, RESTORING WATERWAYS

Implementation Underway in Four Mile Run's Tidal Corridor

Since 2002, an Agency Coordination Group (ACG) made up of representatives from various departments within Arlington County, the City of Alexandria, the U.S. Army Corps of Engineers, and the Northern Virginia Regional Commission have partnered to plan for the restoration of the lower 2.5 miles of the Four Mile Run flood control corridor. The highly celebrated Four Mile Run Restoration Master Plan envisions sensitive and sustainable integration of natural areas with active urban nodes - a model for urban ecological restoration. Efforts are underway to implement this vision.

Based on the design language established through the Four Mile Run Design Guidelines, the first two structural elements that will be designed and constructed include the tidal corridor restoration demonstration project and a pedestrian-cyclist bridge near the end of South Eads Street in Arlington and near the end of Commonwealth Avenue in Alexandria.

To improve the ecological integrity of the waterway, the tidal portion of Four Mile Run, beginning roughly at the Mount Vernon Avenue bridge down to the Route 1 bridge, will be designed to create a dynamically stable stream channel using natural stream channel design techniques. Strategies include the creation of wetland bars planted with native vegetation. In spring 2009, the consulting firm RK&K was hired

to develop a 90 percent design for the entire tidal corridor and then a final design for the demonstration project area, which will be selected by the ACG. The corridor restoration project is funded in part by a State and Tribal Assistance Grant, administered by the U.S. Environmental Protection Agency.

Concurrently, a bridge design competition for the pedestrian-cyclist bridge will take place with the release of a request for qualifications in October 2009. With support by the Virginia Tech Washington-Alexandria Architecture Center, the ACG will narrow the list of prospective candidates. A short-list of candidates will participate in a lecture series sponsored by Virginia Tech. Eventually, a jury composed of recognized architecture professionals will make a final recommendation for the ACG to consider. Once the preferred candidate is identified and under contract, formal design on the bridge will take place. Information about the pedestrian-cyclist bridge competition is available online by visiting www.4milerun.org.

The vision and goal of the Master Plan to transform this inaccessible corridor into a community focal point is well on its way to becoming a reality. ❖

For more information, contact:
Sayedul Choudhury at 703.642.4633 or
schoudhury@novaregion.org

CHESAPEAKE BAY EXECUTIVE ORDER

Federal Partnership Renews Effort to Restore and Protect the Bay

On May 12, 2009, President Barrack Obama signed a landmark Executive Order that recognizes the Chesapeake Bay as a national treasure and calls on the federal government to lead a renewed effort to restore and protect the nation's largest estuary and its watershed.

The Chesapeake Bay Protection and Restoration Executive Order established a Federal Leadership Committee led by the US Environmental Protection Agency and includes senior representatives from at least seven federal departments, to oversee the development and coordination of reporting, data management and other activities by agencies involved in Bay restoration.

On September 9, 2009, the Committee released its draft report for addressing seven key challenges to protecting and restoring the Chesapeake Bay. The major recommendations include strengthening existing regulations under the Clean Water Act, including a Bay-wide Total Maximum Daily Load (TMDL), holding states accountable with meeting pollution reduction milestones, and implementing a compliance and enforcement strategy. The report, along with additional information, is available online at: www.executiveorder.chesapeakebay.net. ❖

DID YOU KNOW...

The Chesapeake Bay TMDL is a collection of 92 existing impairments on Virginia and Maryland's 303(d) impaired waters list?

ADAPTATION, continued from page 1

In the United States, wide-scale planning for climate change adaptation greatly lags behind efforts to mitigate greenhouse gas emissions and improve energy efficiency. However, global climate change is well-documented and qualitative analyses of current and near-term impacts from rising temperatures and rising seas are widely-available. Northern Virginia is one of a few early leaders in the United States taking on the challenge of working with a diverse group of stakeholders to quantitatively determine the range of local impacts from sea level rise inundation and storm surge flooding and incorporate adaptation strategies into local planning documents.

Communities within Northern Virginia are prone to significant episodic inundation from the Potomac River due to watershed runoff and from surge created by hurricanes and large storm events. Since 1933, the top five inundation events recorded at the Washington, D.C. NOAA Tides and Currents gauge, occurring along the Potomac River, elevated the water level 1.4 to 2.4 meters above the mean sea level.

Long-term projected sea level rise is influenced by a global change in the level of the world's oceans as well as the sinking or rising of the land elevation. Global sea level rise occurs due to a variety of factors, the most significant being thermal expansion of the oceans and the addition of water by melting of land-based ice sheets, ice caps and glaciers.

Relative sea level rise refers to the change in sea level relative to the elevation of the adjacent land, which can also subside or rise due to natural and human-

induced factors. Relative sea level changes include both global sea level rise and changes in the vertical elevation of the land surface. The scenarios selected for the Sustainable Shoreline and Community Management Project represent the historic trend based on the Washington, D.C. gauge, the average rate of sea level rise projected for the Chesapeake Bay region, and the highest rate projected for the region, based on global sea level rise.

NVRC has a long history of working cooperatively with European countries to harness lessons-learned and integrate innovative thinking into the Northern Virginia region, particularly for greenhouse gas reduction and other climate change mitigation efforts. The same approach applies to the development of adaptation strategies for sea level rise in the region.

With support from existing sea level response strategies accepted in other parts of the United States and countries abroad, the Northern Virginia local governments may confidently work toward responding to how best to prepare their communities for projected relative sea level rise, storm surge, and other aspects of climate change.

As Northern Virginia's jurisdictions move forward in the development of regional adaptation strategies, they can build upon the solid foundation of existing land use and environmental policies they have in place and lessons learned from leading U.S. and international cities.

With this effort and others, NVRC strives to develop a greater sense of pride in Northern Virginia's shorelines, the natural resources it contains, and those it supports locally and downstream. Through thoughtful and collaborative data collection, policy review, and product development the Sustainable Shoreline Community Management in Northern Virginia project will assist planners, decision makers, and individual residents living along the shoreline adapt to the changing climate in a manner that limits human health risk and sustains the environment. ❖



Members of the Sustainable Shorelines and Community Management Workgroup highlight areas along the Potomac River that historically flood.

For more information, contact:
Laura Grape at 703.642.4625 or
lgrape@novaregion.org

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Laura Grape, Editor

Division of Planning and Environmental Services

Aimee Vosper, Director

Sayedul Choudhury

Samantha Ference

Norm Goulet

Laura Grape

Dale Medearis

Debbie Spiliotopoulos

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Northern Virginia Regional Commission
www.novaregion.org

3060 Williams Drive, Suite 510
Fairfax, Virginia 22031
Ph: 703.642.0700 Fax: 703.642.5077
info@novaregion.org

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